



Rocky Flats Environmental Technology Site

APPENDIX 8 TO SWP-RFCSS-00002-00, "RECONNAISSANCE LEVEL CHARACTERIZATION"

T-881A, T-881B, T-883A, T-883B, and T-883C WCF: _______

T-439A and T-439D WCF:

February 2000

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Rocky Flats Environmental Technology Site

Reconnaissance Level Characterization Package for Group B Trailers

February 2000

Revision 0

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Maria Broussard	Date
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This fact the delicate

Mark Brooks Date

RMRS Quality Assurance

2 - 2 - 00 Date

Jeff Stevens

Managar, D.S.D. Advanced Ple

Manager, D&D Advanced Planning

Kaiser-Hill Company

Approved by:

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1.0 INTRODUCTION

This Characterization Package is designed to describe the necessary surveys and sampling for Reconnaissance Level Characterization (RLC) and Pre-Demolition Survey (PDS) in preparation for release and re-use of RFETS Group B Facility: B575. The RLC and PDS strategies are based upon the draft *Reconnaissance Level Characterization Plan* (RLCP) and the *Pre-Demolition Survey Plan* (PDSP), respectively, including the Data Quality Objectives (DQOs) presented herein. The DQOs used to implement this strategy are presented below. The DQO process was used to evaluate existing information and data and to determine additional characterization requirements needed to define building hazards (radiological, chemical and safety) per Attachment 9 of RFCA and to initially identify anticipated waste streams. All quality assurance requirements presented in MAN-077-DDCP, *Decontamination and Decommissioning Characterization Protocol* (DDCP) will be followed.

Existing data on radiological and non-radiological hazards associated with this facility are insufficient to address the applicable DQO decision rules. In most cases, radiological surveys were carried out many years ago and are not retrievable. Likewise, no data exist for non-radiological hazards such as asbestos and PCB-containing ballasts in fluorescent light fixtures.

Radiological Characterization

Based upon historical and process knowledge, the radiological contaminants of concern for the purposes of surveys and sampling were determined to be uranium, plutonium and americium. Radiological surveys for fixed and removable contamination will be conducted on internal and external walls, floor, ceilings and roofs as directed by the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM). Radiological measurements and samples will be collected per PRO-476-RSP-16.02, *Radiological Surveys of Surfaces and Structures* and PRO-477-RSP-16.03, *Radiological Samples of Building Media*.

Non-Radiological Characterization

The non-radiological contaminants of concern for the purposes of sampling were determined to be PCBs (contained within Fluorescent light fixtures) and asbestos. Asbestos sampling and analyses is as per PRO-563-ACPR, *Asbestos Characterization Procedure*.

The characterization requirements are summarized in Table 1.

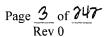


Table 1: SUMMARY OF CHARACTERIZATION REQUIREMENTS

For all required surveys and sampling, historical and RLC data will be provided as attachments to the Reconnaissance Level Characterization Report (RLCR). Contaminant Sample/ Comments **Survey Amount** & Type Radiological A total of 462 Total surface activity measurements include fixed and contaminants total surface removable contamination surveys for alpha and beta. Biased (Pu, U, and Am activity scans are on floors and exterior surfaces in seams, cracks, measurements corners, and other locations where contamination is expected to (66 per trailer) accumulate. No less than 10% of the total area will be scanned. plus biased scans RCRA None required. According to historical data and process knowledge, no RCRA-Constituents regulated chemicals were used or stored in any of the facilities (D&D Facility Characterization Interview Checklist and Attached Facility Checklist and HRR Manager's Report). Therefore, sampling for chemical contaminants is unnecessary and will not be conducted. Lead (Pb) in Environmental Waste Compliance Guidance #27, Lead-based None required. paint Paint (LBP) and Lead-based paint Debris Disposal, has directed that LBP debris generated outside of currently identified HCA's shall be managed as non-hazardous waste derived from LBP is not a requirement for disposal. Additionally, lead characterization is not required for release of trailers to commerce, as long as it is disclosed to the buyer that the trailer may contain lead-based paint. Therefore, analysis of the lead content of paint on the trailers and buildings is unnecessary and will not be conducted. Beryllium None required. There is no record of beryllium operations or storage being carried out in any of the facilities (D&D Facility Characterization Interview Checklist and Attached Facility Checklist and HRR Manager's Report, and CBDPP List of Known Beryllium Areas). Additionally, these facilities have been used as administrative office space since their arrival on site, and the RFETS Administrative Equipment Characterization for Beryllium Contamination Project Plan Report showed no detectable beryllium contamination in the 60 RFETS administrative buildings with no record of beryllium activities that were studied.

D 1	T	
Poly-	Inspection of	Fluorescent light fixtures in each facility are likely to contain PCB-
chlorinated	fluorescent light	containing ballasts. For trailers that are to be re-used or
biphenyls	fixtures for PCB	released to commerce, PBC ballasts must be inspected for leakage
(PCBs)	ballasts	prior to release to commerce, and if leaking, must be removed.
		Environmental Waste Compliance Guidance #25, Management of
		Polychlorinated Biphenyls (PCBs) in Paint and Other Bulk Product
		Waste During Facility Disposition, has directed that applied dried
		paints, varnishes, waxes, or other similar coatings or sealants are
		acceptable for disposal (with notification) in a non-hazardous solid
		waste landfill as PCB Bulk Product Waste under 40 CFR 761.3 and
		40 CFR 761.62 paragraph (b) and therefore need not be sampled as
		long as restrictions outlined in 40 CFR 761.62 regarding their
		disposal are met.
		Additionally, while the paint on the interior and exterior surfaces of
		the trailers has not been characterized for PCBs in paint, such
		characterization is not required for release of the trailers to
		commerce. Therefore, analysis of PCBs in paint from the
		interior and exterior surfaces of the trailers is unnecessary and
		will not be conducted.
Asbestos	Inspection for	For trailers that are to be re-used or released to commerce,
	friable and non-	inspection must be conducted for friable asbestos only.
	friable asbestos.	
	Sampling at	
	direction of	
	CDPHE-certified	
	asbestos	
	inspector.	
		<u></u>

2. DATA QUALITY OBJECTIVES

This section defines the DQOs for RLC and PDS in preparation for release and re-use of the RFETS Group B Facilities: T-881A, T-881B, T-883A, T-883B, T-83C, T-439A, and T-439D.

2.1. The Problem

The nature and extent of radiological, chemical and safety hazards in T-881A, T-881B, T-883A, T-883B, T-83C, T-439A, and T-439D, are not known with sufficient confidence to allow free-release and re-use.

2.2. The Decision

Have free-release standards been met relative to potential chemical and radiological hazards?

2.3. Inputs to the Decision

The inputs to the decision include the planned RLC and PDS survey and sampling data, historical information generated from previous characterization activities (e.g., scoping characterization, etc.), and the applicable unrestricted release criteria. Specifically, inputs to the decision rule include:

- radiological survey/scan measurements of all trailers;
- asbestos inspection and sampling results;
- inspection of fluorescent light fixtures for PCB-containing ballasts;
- quality assurance aspects of the data, including precision, accuracy, representativeness, completeness, and comparability (i.e., the PARCC parameters);
- unrestricted release criteria (1-P73-HSP-18.10, Appendix 1):
- 40 CFR 761 (PCB regulations)
- 40 CFR 763 and 5 CCR 1001-10 (asbestos regulations).

Radiological instrumentation planned for the project is controlled by K-H Analytical Services Division through contractual requirements with onsite and offsite (radiochemistry) vendors. All instrument sensitivities are adequate for producing results comparable to free-release action levels and compliance with DOT requirements.

2.4. Decision Boundaries

Three-dimensional boundaries for defining the levels and extent of radioactive contamination are restricted to the interior and exterior surfaces, and do *not* include the underlying soil. There are no temporal boundaries relative to technical data quality; time constraints depend only on project schedule.

2.5. Decision Rules

The following are decision rules to be used during PDS:

• If all radiological survey/scan measurements are below the surface contamination thresholds provided in DOE Order 5400.5 (Radiation Protection of the Public and Environment) and the

RFETS Radiological Control Manual, the related area or volume of material is considered sanitary waste and may be free-released.

- If any radiological survey/scan measurement exceeds the surface contamination thresholds provided in DOE Order 5400.5, the related area or volume of material must be remediated or dispositioned as radiological or mixed waste.
- PCB-containing ballasts which are leaking must be identified and removed prior to release as directed in PRO-673-EWQA-1, RFETS Polychlorinated Biphenyls Management Plan, Environmental Compliance Guidance No. 22, Management of Fluorescent Light Ballasts, and 40 CFR 761.
- For asbestos, in accordance with 40 CFR 763 and 5 CCR 1001-10, if any one sample of a sample set representing a homogeneous medium results in a positive detection (i.e., >1% by volume), then material is considered asbestos-containing material (ACM); otherwise the material is considered non-ACM.

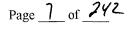
2.6. Tolerable Limits on Decision Errors

The number of survey points was determined as prescribed by MARSSIM §5.5.2.3. A conservative estimate of relative shift (Δ/Φ) as one (1), coupled with a 5% acceptable error for alpha and beta, respectively, resulted in 28 random measurement locations per survey unit.

No statistical basis is necessary for potential nonradioactive hazards, as process knowledge associated with the trailers indicates no previous chemical processing, and visual inspections are biased toward the most likely areas or portions of the trailers to yield PCBs (ballasts) or asbestos.

2.7. Optimization of Plan Design

Statistically based radiological surveying and sampling will be conducted per the guidance in Section 5.5 of MARSSIM and the PDSP. The location of radiological survey/sampling points will be delineated per the guidance provided in Section 5.5 of MARSSIM. Radiological field measurement methods and instrumentation will be delineated per the guidance in Section 6 of MARSSIM. Radiological sampling and preparation for laboratory measurements will be delineated per the guidance in Section 7 of MARSSIM.





3.0 CHARACTERIZATION INSTRUCTION FOR RADIOLOGICAL SURVEYS



INTEROFFICE CORRESPONDENCE

DATE:

February 8, 2000

TO:

FILE

FROM:

R. S. Roberts, Radiological Engineering Support Services, Bldg. T130B, X4869

SUBJECT:

SCAN SURVEY REQUIREMENTS FOR THE PRE-DEMOLITION SURVEY FOR

THE GROUP B/C FACILITIES-RSR-001-00

The purpose of this correspondence is to document the methodology to be used to perform radiological scan surveys for the Pre-Demolition Survey at the Group B/C facilities.

To perform beta scans for the Group B/C facilities, the following methodology will be used.

- 1. The NE Electra with DP6 Probe will be used.
- 2. The probe will be moved at a speed of 4 inches/second. This corresponds to a scanning MDC of 2525 dpm/100 cm² (See Rad Engineering Calculation No. 00-RS-0001, "Beta Scan MDC Calculation For NE Electra with DP6 Probe").
- 3. If elevated activity is found during scanning, perform a 1-minute PAT at that location.
- 4. Record PAT results. If PAT results are ≥ 3750 dpm/100 cm², contact radiological engineering.
- 5. Continue scanning.

To perform alpha scan surveys for the Group B/C facilities, the attached methodology outlined in Attachment A will be used. This alpha scan methodology is consistent with the methodology used to perform Final Status Surveys at Building 779. If a 90-second PAT result is \geq 75 dpm/100 cm², contact Radiological Engineering Support Services.

Each survey unit within the Group B/C facilities will have 10% of the surface area scanned for both alpha and beta contamination. Areas with the highest potential for contamination will be scanned.

CONCURRENCE

Bates Estabrooks, Manager

Radiological Engineering Support Services

JWP:alk

Attachment As Stated

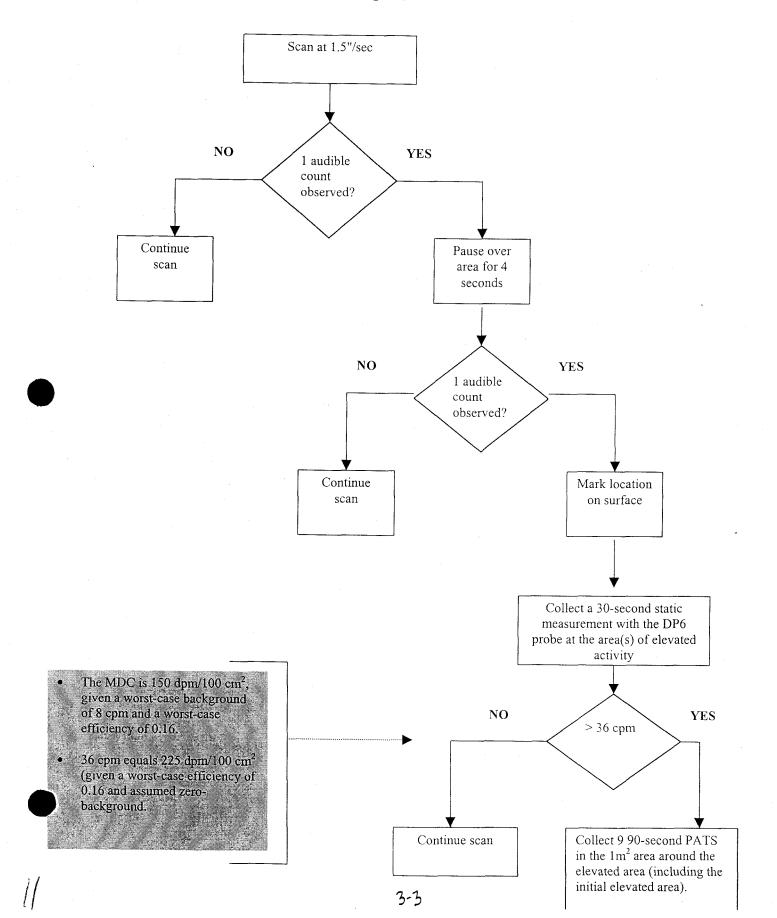
CC:

H. B. Estabrooks

E. D. Lesses

R. P. Worster

Attachment A Scan Method with DP6 (Alpha)





INTEROFFICE CORRESPONDENCE

DATE:

February 9, 2000

TO:

FILE _ _ _

FROM:

R.S. Roberts, Radiological Engineering, Bldg. T130B, X4869

SUBJECT:

RADIOLOGICAL SURVEY FORMS FOR THE PRE-DEMOLITION SURVEY

FOR THE GROUP B/C FACILITIES-RSR-002-00

The purpose of this correspondence is to delineate the radiological survey forms that will be used to document total, removable and scan surveys for the Pre-Demolition Survey at the Group B/C facilities.

The following attached survey forms will be used to document the total, removable and scan surveys for the Pre-Demolition Survey at the Group B/C facilities.

- 1. Instrument Data Sheet
- 2. Survey Signature Sheet
- 3. Total Surface Activity Sheet
- 4. Removable Contamination Data Sheet
- 5. Final Survey NE Electra Scan & Investigation Survey Form
- 6. Final Survey NE Electra Scan & Investigation Survey Form (Continuation Sheet)
- 7. Final Survey NE Electra Scan & Investigation Survey Map

These attached survey forms replace RSFORMS-16.02-1, "Total Surface Activity Survey Data Form," RSFORMS-16.02-2, "Removable Surface Activity Data Survey Form," and RSFORMS-16.02-3, "Surface Scanning Data Sheet." The attached forms were used during the Final Status Survey at Building 779, and their use will streamline the process by which radiological surveys are documented. The following changes to the forms are noted.

- The use of a "Probe Correction Factor" and an "Efficiency" is redundant so the use of the "Probe Correction Factor" was discontinued.
- A "Sample Location" with an associated location map is being used instead of both a "Sample/Swipe Number" and "Location/Description" designator. These are equivalent.
- The date of the survey is being recorded instead of both the date and time. This is sufficient for documentation.
- The "Probe Number" has been deleted for swipe survey instruments since no probe is associated with these instruments.

CONCURRENCE

Bates Estabrooks, Radiological Engineering Support Services Manager

attachments

CC:

Ron Worster

Bates Estabrooks



Survey Area:	Survey Unit:	Building:	
Survey Unit Desci	ription		

Rem	ovable Contami	nation Survey	Instrument D	ata
Manufacturer			T	<u> </u>
Model				
Inst. ID #	1	2	3	4
Serial #				
Cal. Due Date				
Analysis Date				
Instrument Bkgd				
Instrument Eff.				
Instrument MDA				

Manufacturer	N.E. Tech.	N.E. Tech.	N.E. Tech.		
Model	Electra	Electra	Electra		
Inst. ID#	5	6	7	8	9
Serial # / Probe #	/	/	/		
Cal. Due Date					
Survey Date					
Alpha Bkgd / Beta Bkgd	/	/	/		
Alpha Efficiency / Beta Efficiency	1	/	1		
Instrument MDA Alpha / Beta	. /	/	1		

Survey Area:	Survey Unit:	Building:	
Survey Unit Descri	ption	1	

	SURVEY SIGNATURE SHEET								
	Removable /Total Surface Activity Performed By								
RCT ID # 1									
-	RCT Printed Name	Employee #	RCT Signature	Date					
RCT ID#2									
	RCT Printed Name	Employee #	RCT Signature	Date					
RCT ID#3									
	RCT Printed Name	Employee #	RCT Signature	Date					
RCT ID # 4									
	RCT Printed Name	Employee #	RCT Signature	Date					
RCT ID # 5									
	RCT Printed Name	Employee #	RCT Signature	Date					
RCT ID#6			•						
	RCT Printed Name	Employee #	RCT Signature	Date					
RCT ID#7									
	RCT Printed Name	Employee #	RCT Signature	Date					

Quality Control Measurements Performed By

RCT ID#8				
RCT ID#9	RCT Printed Name	Employee #	RCT Signature	Date
10#9	RCT Printed Name	Employee #	RCT Signature	Date

Survey Reviewed By

RCT Foreman Printed Name	Employee #	RCT Foreman Signature	Date

Survey Area:	Survey Unit:	Building:	
Survey Unit Description	n		

Total Surface Activity Data Sheet								
Sample ocation	RCT ID#	Inst. ID#	Inst. ID#	Survey count time (sec)	LAB (cpm) α / β	Gross Count (gcpm) α / β	Net counts per minute (cpm) α / β	Net Activity (dpm/100cm2) α / β
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				/	1	1	1	/
				1	1	/	1	1
				1	1	/	/	/
				1	1	1	1	/
_QC					/	/	/	1
_QC					/	/	1	1
_QC				1.	1	1	1	1
_QC				 	1	7	/	/
_QC	· · · · · · · · · · · · · · · · · · ·			 	1	 	/	1

Note: QC measurements are to be collected by a different technician than the original survey. Mark the QC location number in the "Sample Location" column. Material background is assumed to be zero unless otherwise noted. "LAB" ~ local area background.

Survey Area:	Survey Unit:	Building:	
Survey Unit Description	n		

Sample Location	RCT ID#	Inst ID #	Gross Co (gcpr			Counts pm)	Remova (dpm	ble Activity /100cm2)
			α	β	α	β	α	β
				<u> </u>		P		
				**				
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Final Survey NE Electra Scan & Investigation Survey Form

SU:				Survey D	ate:		Survey Numbe	r:
Survey	Unit Des	cription:						Andrew Andrews
			E	lectra DP-	6 Beta		Electra DP-6	Alpha
Loc. ID#	RCT ID #(s)	Inst. ID #(s)	Elevated Audible observed? "Y" or "N"	60-sec P. (dpm/100c	4	4-sec Au observe	dible 30-sec Sta ed? (gcpm)	tic 90-sec PAT
							, .	
		71 70 70 70				·		
Electra a were <22 Electra b	!5 dpm/100c eta scans we	m², unless n	oted in the above tab	le.			e areas were scanned.	All initial scan results
above tal		ra DP-6	☐ Other		Probe	□ S/N:_	Cal Du	e:
Inst. ID#I	Eff. (c/d)):	MDA (dpm/100	cm ²):	Bkgd (cp	m): B	Skgd Count Time (se	ec):
Inst.	☐ Elect	ra DP-6	□ Other		Probe	□ S/N:	Cal D	ue:
1D #2	Eff. (c/d)):	MDA (dpm/100	cm ²):	Bkgd (cpi	n): Bkg	gd Count Time (sec)	
Inst. ID #3	☐ Elect	та DP-6	□ Other		☐ Probe	🗆 S/N	I: Ca	l Due:
	Eff. (c/d)):	MDA (dpm/100	cm ²):	Bkgd (cp	n): Bkg	gd Count Time (sec)	
Inst. ID #4	☐ Elect	ra DP-6	□ Other		□ Probe	D S/N	I: Ca	Due:
	Eff. (c/d):	MDA (dpm/100	cm ²):	Bkgd (cp	n): Bkg	gd Count Time (sec)	
RCT ID # 1		DCT D	rinted Name		Employee #	n cr		Date
		KCIFI	inted Name		Employee #	RC I	Signature	Date
RCT ID # 2		RCT Pr	rinted Name		Employee #	RCT	Signature	Date
RCT ID								
# 3		RCT Pı	rinted Name		Employee #	RCT	Signature	Date
	RO	CTTS Printe	d Name		Employee #	RCTT	S Signature	Date

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Final Survey NE Electra Scan & Investigation Survey Form (Continuation Sheet)

SU:				Survey Dat	e:	S	urvey Number:	
Surve	y Unit D	escripti	on:				THE RESIDENCE OF THE PARTY OF T	
	The comp			Electra DP-8			Electra DP-6	
Loc. ID#	RCT ID #(s)	Inst. ID #(s)	Elevated Audible observed? "Y" or "N"	60-sec PAT (dpm/100cm2)		4-sec Audible observed? "Y" or "N"	30-sec Static (gcpm)	90-sec PAT (dpm/100cm ²)
	-							
						~		
				,				
								-
			·			·		

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Final Survey NE Electra Scan & Investigation Survey Map

SU:	Survey Date:	Survey Number:
Survey Unit Description:		A Desire Salara
RCT Initials/Date:	RCT Initials/Date:	RCT Initials/Date:
Refer to the Final Survey NE Electra	Scan & Investigation Survey Form for it	nstrumentation, surveyor & approval information.
	•	

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Rev. 020900



INTEROFFICE CORRESPONDENCE

DATE:

March 3, 2000

TO:

FILE

FROM:

Eric D. McKamey, D & D Advanced Planning, Bldg. T893B, X3209

SUBJECT:

REVISION TO PRO-478-RSP-16.04. RADIOLOGICAL SURVEY/SAMPLE DATA

ANALYSIS - EDM-001-00

The purpose of this correspondence is to provide content change recommendations to PRO-478-RSP-16.04, Radiological Survey/Sample Data Analysis, specifically Section 7.2.2 Accuracy.

In order to conduct Data Quality Analysis of surveys/sample of structures currently undergoing Pre Demolition Surveys, it is imperative to provide acceptable instructions for data analysis until the procedure undergoes a DCF or revision.

The current instruction directs the Project RE to calculate the Mean Square Error from presurvey and post-survey performance checks. Mean Square Error is a tool used to compare two point estimates that have different expectations and different variances. The use of Mean Square Error for the purpose of verifying accuracy and bias of survey/sample data is applied inappropriately.

Section 7.2, <u>Data Validation</u> identifies accuracy as a combination of precision (quantitative measure) and bias. Simply put, accuracy data analysis should include:

- 1. Review of Portable Contamination Instrument Performance Test Logs (RSFORMS 02.01-02) and Swipe Counter Performance Logs (RSFORMS 02.01-03) to verify that instrument response to source activity is \pm 20% of decay corrected activity and
- 2. Determine whether or not bias exists as indicated on instrument control charts.

A recommended revision to Section 7.2.2 Accuracy is as follows:

7.2.2 Accuracy

Project RE

Direct Surveys and Scans:

[1] Verification of instrumentation performance check logs and control charts can demonstrate that analytical bias is not a significant problem for scanning or direct measurements.

NOTE Field background measurements can be plotted to estimate bias caused by contamination of the instrument, if this is deemed necessary.

"Concentrate: Safe Behavior Equals Safe Performance"

- [2] Note the applicable bias range (\pm 20% of Source Activity) allowed for each instrument (3-PRO-112-RSP-02.01, RSFORMS 02.01-01) used. Verify that the instrument(s) response is \pm 20% of Source Activity. This can be accomplished by verifying the results on the Performance Test Log(s) or control charts.
- **NOTE** If an instrument is recalibrated during PDS use, generate a separate control chart and calculate bias separately for each calibration period.
- [3] Determine if bias exists by reviewing trends on instrument control charts.
- [4] Record the results as Survey Accuracy on the DQA Checklist (Appendix A).

CONCURRENCE

Bates Estabrooks, Radiological Engineering Support Services Manager



INTEROFFICE CORRESPONDENCE

DATE:

March 9, 2000

TO:

FILE

FROM:

R.S. Roberts, Radiological Engineering, Bldg. T130B, X4869

SUBJECT:

ROOF SURVEY/SAMPLING REQUIREMENTS FOR THE GROUP B/C

FACILITY CHARACTERIZATION - RSR-003-00

The purpose of this correspondence is to document the methodology to be used to perform roof survey/sampling at the Group B/C facilities. Roof sampling is required due to consistently high total alpha readings on the roofs above the DCGL_W (100 dpm/100 cm²). There is no associated removable alpha activity above the release limits in DOE Order 5400.5. The total and removable beta activities are also below the release limits in DOE Order 5400.5.

Historical and process knowledge on the Group B/C facilities gives no indication that DOE added radioactive material should be present on the exterior of the trailers. Therefore, these elevated readings are expected to be from radon daughter products. This is anticipated since elevated roof readings at Rocky Flats have been a continuing occurrence with no corroborating evidence that the elevated readings are from DOE added radioactive material.

The following methodology will be followed to survey/sample the exterior of the Group B/C facilities.

- The 10% exterior scans will be taken on the walls of the exterior of the trailer.
- 2. At one elevated location on the roof, it will be verified that the average total alpha contamination is above the 100 dpm/100 cm² average release limit. This will be performed by taking 9 total alpha surveys at each location. The surveys will be performed in a 3 X 3 matrix within a one square meter area. The 9 survey results will be averaged and reported. An alpha scan of the one square meter area will also be performed to document the range of alpha activities in the one square meter.
- 3. At the location where the 9 survey points was taken and at the next highest survey point, roof samples will be taken.

A roof sampling and analysis methodology will be developed and approved for use within the applicable IWCP (SWP-RFCSS-0002-00).

CONCURBENCE

XX XXIIIXIII 3/9/00

Bates Estabrooks, Radiological Engineering Support Services Manager

cc: Marla Broussard Ron Worster Bates Estabrooks

Steve Luker

Eric McKamey

Sa 1 242 All 3/14/00



INTEROFFICE MEMORANDUM

DATE:

June 7, 2000

TO:

File

FROM:

Eric D. McKamey, D & D Advanced Planning, Building 116, X3209

SUBJECT:

ROOF SURVEY/SAMPLING REQUIREMENTS FOR THE GROUP B/C

FACILITY CHARACTERIZATION - RSR-003-00, REVISED - EDM-003-00

The purpose of this correspondence is to provide clarification to the methodology used to perform roof survey/sampling for the Group B/C facilities. The Interoffice Correspondence entitled ROOF SURVEY/SAMPLING REQUIREMENTS FOR THE GROUP B/C FACILITY CHARACTERIZATION – RSR-003-00 was written and signed (concurrence) on March 9, 2000. A project meeting was held on March 15, 2000 to discuss the correspondence along with other project matters and set plans for implementation.

In order to ensure worker safety and meet applicable requirements, the following revised methodology was agreed upon by the project team at the above mentioned meeting to survey/sample the exterior of the Group B/C facilities.

- 1. Alpha scans of the one square meter 9 point investigation area were not to be performed. It was determined that the 9 point investigation values would suffice in documenting the range of alpha activities. (Item #2 on referenced correspondence.)
- 2. Sample locations were chosen at elevated locations that were safely accessible using a ladder. These locations were at/near the roof edge and may/or may not have included the location where the 9 point investigation was performed or at the next highest survey point. The TSA results at the sample locations were representative of the TSA results determined in the survey design. (Item #3 on referenced correspondence.)

CONCURRENCE

Bates Estabrooks

Date

Acting Manager

Radiological Engineering

pjh

CC:

Marla Broussard Steve Luker Rick Roberts Ron Worster

"Concentrate: Safe Behavior Equals Safe Performance"



INTEROFFICE MEMORANDUM

DATA QUALITY ANALYSIS (DQA) OF GROUPS B AND C SIGNATURE/INITIAL

Eric D. McKamey, D & D Advanced Planning, Building 116, X3209

Groups B and C.	vided to clarify the signature/initial requi	irements of the DQA performed to
to complete data analysis of initials/date of the Radiologica	gical Survey/Sample Data Analysis, App Pre-Demolition Survey (PDS) data. T al Engineer performing the step but do dentifies by name, signature and initia for Groups B and C.	the checklist provides a block for ses not require a signature. The
DQA:		
Eric D. McKamey	5. D. my	Duy
Name	Signature	Initials
Peer Review:		
D. A. Barnes	1/2-	d>
Name	Signature	Initials

"Concentrate: Safe Behavior Equals Safe Performance"

Date

DATE:

FROM:

SUBJECT:

CONCURRENCE

Joe Mahaffey

edm

Manager, Radiological Engineering

TO:

August 2, 2000

CLARIFICATION-EDM-007-00

File



INTEROFFICE MEMORANDUM

DATE:

August 2, 2000

TO:

File

FROM:

Eric D. McKamey, D & D Advanced Planning, Building 116, X3209

SUBJECT:

T-883C (Interior and Exterior) Survey Packages Status- EDM-008-00

This correspondence is provided to clarify the status of the T-883C (Interior and Exterior) Survey Packages.

T-883C was originally part of the Group B Characterization Package. Reconnaissance Level Characterization (RLC) surveys were performed to Pre-Demolition Survey (PDS) requirements to release the trailer for re-sale. T-883C was removed from the Group B Characterization Package after the completion of the surveys and reassigned/relocated to support B771. The T-883C Survey Packages are provided for historical information only and will not be used to release the trailer for re-sale.

CONCURRENCE

Joe Mahaffey

Manager, Radiological Engineering

Date

edm

"Concentrate: Safe Behavior Equals Safe Performance"

3-16 to tom e/3/00 3-15 to

SURVEY PACKAGE COVER SHEET

Package ID: 2000-01	Building: T881A				
Survey Area: Not Applicable	Survey Unit: Interior				
Survey Unit Description: This trailer was acquired June of 1983. The size of this trailer is approximately 14	and installed at this site, northeast of X 70'.	of Building 881, in			
Building Information:					
Survey Type: Reconnaissance Level Characterization S	Survey Final Status Survey X				
Building Type: Type 1 X Type 2 □ Type 3 □					
Classification: Class 1 Class 2 Class 3 X Unk	nown 🗆				
Contaminants of Concern: Plutonium X Uranium X (Other 🗆				
Justification for Classification: This facility h contamination.	as no known history of radiolo	gical			
Special Support Requirements: Ladder, manl	ift, scaffolding, and/or remote	reach tools and			
instrumentation may be required for surveying i		reas include			
upper walls and ceilings on the interior and upper walls and roof on exterior.					
Special Safety Precautions: Access to overhead caution when working in overheads.	ad areas may require additiona	l controls. Use			
Isolation Controls:		1 2 1 1			
Level 1 Level 2 X N/A					
Labeling Requirements: The location where fi	xed and removable surveys ar	e performed will			
be marked using a sticker or a marker and then	•	-			
Survey Package Implementation:					
Survey I ackage implementation.					
	\sim \sim				
RICK ROBERTS	Section 41	1/28/00			
	iological Engineer Signature	Date			
	'A	N/A			
	S Manager Signature	Date			
H. B. ESTABROOKS	The State of the s	1/3/100			
	S Manager Signature	Date "			
Survey Package Closure:					
RICK ROBERTS (1975)	2. 4.7.4	\$2/38 ALC			
RESS Radiological Engineer Printed Name RESS Radiological Engineer Signature Date					
NOT APPLICABLE	'A	N/A			
	S Manager Signature	Date			
J. B. ESTABROOKS	Jonahopex	8/3/10			
RESS Manager Printed Name	SS Manager Signature	Data			

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SURVEY PACKAGE TRACKING FORM

Package ID: 2000-01		Building: T881A		
Survey Area: Not Applie	cable	Survey Unit: Interior		
Initiator/ Date	Release Date	Validation Date	Closure Date	
AMA 1/31/00	1131/00	12 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Aug BAGAN	
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SURVEY PACKAGE CORRECTION/CHANGE HISTORY FORM

Package ID: 2	000-01	Building: T881A	- 10 1 10 10 10 10 10 10 10 10 10 10 10 1	
Survey Area:	Not Applicable	Survey Unit: Inter	ior	
Change #	Description	and a first transfer of the state of the sta	Initiator/ Date	PRE
	Return San Song ,	est la Whater	Little Street	A 12
	R18-001-00 2012	218100	•	
2	Document Reducing in S	Samuel		12
	Little Rig - 00 1 m d.		Litt april	MOZ
3	Surry Mr. Reider R	A Personal	The warm	
4	parties .	1	Mr Juin	
5	2 samples and 190 sample,	required per	DAM 4/1/08 a	Marie E
	Characterysten Pakene Super	lement for all 10	<u></u>	
	Sompling and Analysis of Ro	Material P	00 pp	
	from Groups B4 C Kov 150t		1700	
5	corrected Scan regurement	V	EMM 6/20/00	L. Commercial Control of the Control
-				

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INITIAL SURVEY PACKAGE DESIGN FORM

Package ID: 200	ge ID: 2000-01 Building: T881A Type: 1				
Survey Area: No	t Applicable	Survey Unit: Inte	rior Area (m²): 196		
	ription: This trailer this trailer is approx		installed at this site,	northeast of Buildin	ng 881, in June of
Survey Type:			Classification:		de of mande de de de compression de la compression della compressi
RLC Survey □	FSS X		Class 1 🗖 Class 2	2 □ Class 3 X Unl	known 🗆
Random/Uniform Surface Activity Measurements	Biased Surface Activity Measurements	Equipment Surface Activity Measurements	Media Samples	Volumetric Samples	Surface Activity Scans
28	0	0	WILL O	0	Biased
Building:		Type:	5 60W 17 11 10 M	Survey Area:	
Survey Unit:		9	Area (m ²):		
Survey Unit Desc	ription:				
Survey Type:			Classification:		
RLC Survey □	FSS □		Class 1 Class:	2 🗖 Class 3 🗖 U	Jnknown 🗖
Random/Uniform Surface Activity Measurements	Biased Surface Activity Measurements	Equipment Surface Activity Measurements	Media Samples	Volumetric Samples	Surface Activity Scans
		A			
					WATER AND THE T
Building:	. '	Type:		Survey Area:	
Building: Survey Unit:		Type:	Area (m²):	Survey Area:	broadcists ²⁴
· · · · · · · · · · · · · · · · · · ·	ription:	Type:	Area (m²):	Survey Area:	
Survey Unit:	ription:	Type:	Area (m ²): Classification:	Survey Area:	
Survey Unit: Survey Unit Desc	ription:	Type:		V.	Jnknown □
Survey Unit: Survey Unit Desc	**************************************	Type: Equipment Surface Activity Measurements	Classification:	V.	Jnknown □ Surface Activity Scans
Survey Unit: Survey Unit Description Survey Type: RLC Survey Random/Uniform Surface Activity	FSS Biased Surface Activity	Equipment Surface Activity	Classification: Class 1 □ Class	2 □ Class 3 □ U Volumetric	Surface Activity
Survey Unit: Survey Unit Description Survey Type: RLC Survey Random/Uniform Surface Activity	FSS Biased Surface Activity	Equipment Surface Activity	Classification: Class 1 □ Class	2 □ Class 3 □ U Volumetric	Surface Activity
Survey Unit: Survey Unit Description Survey Type: RLC Survey Random/Uniform Surface Activity Measurements	FSS Biased Surface Activity	Equipment Surface Activity Measurements	Classification: Class 1 □ Class	2 □ Class 3 □ U Volumetric Samples	Surface Activity
Survey Unit: Survey Unit Description Survey Type: RLC Survey Random/Uniform Surface Activity Measurements Building:	FSS Biased Surface Activity Measurements	Equipment Surface Activity Measurements	Classification: Class 1 □ Class Media Samples	2 □ Class 3 □ U Volumetric Samples	Surface Activity
Survey Unit: Survey Unit Description Survey Type: RLC Survey Random/Uniform Surface Activity Measurements Building: Survey Unit:	FSS Biased Surface Activity Measurements	Equipment Surface Activity Measurements	Classification: Class 1 □ Class Media Samples	2 □ Class 3 □ U Volumetric Samples	Surface Activity
Survey Unit: Survey Unit Description Survey Type: RLC Survey Random/Uniform Surface Activity Measurements Building: Survey Unit: Survey Unit Description	FSS Biased Surface Activity Measurements	Equipment Surface Activity Measurements	Classification: Class 1 □ Class Media Samples Area (m²):	2 Class 3 U Volumetric Samples Survey Area:	Surface Activity
Survey Unit: Survey Unit Description Survey Type: RLC Survey Random/Uniform Surface Activity Measurements Building: Survey Unit: Survey Unit Description	FSS Biased Surface Activity Measurements cription:	Equipment Surface Activity Measurements	Classification: Class 1 □ Class Media Samples Area (m²): Classification:	2 Class 3 U Volumetric Samples Survey Area:	Surface Activity Scans

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SURVEY PACKAGE SURVEY/SAMPLING INSTRUCTIONS FORM

Package ID: 2000-01	Building: T881A
Survey Area: Not Applicable	Survey Unit: Interior

Survey Unit Description: This trailer was acquired and installed at this site, northeast of Building 881, in June of 1983. The size of this trailer is approximately 14' X 70'.

Measurement	Number and Type	Comments
Surface Activity	INTERIOR FLOORS/WALLS/CEILINGS:	SEE NOTE 1
Measurements	28 surveys will be taken per the attached survey	SEE NOTE 2
	map.	SEE NOTE 3
		SEE NOTE 4
	OHAT ITY ASSUBANCE SHOVEVS	SEE NOTE 5
	QUALITY ASSURANCE SURVEYS	SEE NOTE 6
	INTERIOR FLOORS/WALLS/CEILINGS:	
	5 surveys will be taken per direction from radiological engineering.	
		·
	1	

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SURVEY PACKAGE SURVEY/SAMPLING INSTRUCTIONS FORM (cont)

Package ID: 2000-01 **Building: T881A** Survey Area: Not Applicable Survey Unit: Interior Survey Unit Description: Trailer XXXX Minimum Survey/Sampling Measurement Requirements Measurement Number and Type **Comments INTERIOR FLOORS: SEE NOTE 1 Surface Scanning** Biased surface scans will be performed on the **SEE NOTE 2** interior floors in areas where contamination **SEE NOTE 3** would accumulate. This includes seams, cracks, corners, doorways and boundaries between **SEE NOTE 4** different types of flooring. **SEE NOTE 5** No more than 10% of the total area will be **SEE NOTE 6** scanned. **QUALITY ASSURANCE SCAN SURVEYS INTERIOR FLOORS:** 5 percent of total number of scans or of total scan area will be taken per direction from radiological engineering. NONE Media Samples Volumetric **NONE** Samples **NONE** Isotopic Gamma Scans

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SURVEY PACKAGE SURVEY/SAMPLING INSTRUCTIONS FORM (cont)

Package ID: 2000-01Building: T881ASurvey Area: Not ApplicableSurvey Unit: Interior

Survey Unit Description: This trailer was acquired and installed at this site, northeast of Building 881, in June of 1983. The size of this trailer is approximately 14' X 70'.

Survey/Sampling Instructions

NOTE 1: Surveys of the area were established on a random basis and are delineated on page 14, RSFORMS-16.01-10, of the survey package. Survey points will be taken in the middle of the survey grid and will be cross-referenced to a common reference point in the trailer. These surveys will be taken in accordance with PRO-476-RSP-16.02, "Radiological Surveys of Surfaces and Structures", for the following:

- Total alpha contamination
- Total beta contamination
- Removable alpha contamination
- Removable beta contamination
- Biased scan measurements for alpha then beta/gamma contamination

For total alpha and total beta surveys, the LAB will be determined at each survey point by placing a piece of plywood over the probe face that is at least 0.5 inch thick and performing an alpha count and a beta count. The material background for both total alpha surveys and total beta surveys will be considered to be 0 dpm/100 cm².

Alpha scanning using the NE Electra for the DP6-BD and DP8A probes will be in accordance with Letter SJR-001-99, "Alpha Scan Rates for Building 779 Cluster Final Status Surveys," and Letter SJR-004-99, "Performance of Scan Surveys with the Bicron/NE DP8 Probe for Building 779 Cluster Final Status Surveys," respectively. Beta scanning using the NE Electra.

NOTE 2: Quality assurance prescribed surveys of the area will be taken in accordance with PRO-476-RSP-16.02, "Radiological Surveys of Surfaces and Structures" per the requirements in PRO-479-RSP-16.05, "Radiological Survey/Sample Quality Control," for the following:

- Direct alpha contamination
- Direct beta contamination
- Scan measurements for alpha then beta/gamma contamination

The location of quality assurance surveys will be delineated by radiological engineering after the initial surveys are performed. Quality assurance surveys will be performed by a different individual than performed the original survey.

NOTE 3: The RCT shall document the results for all surveys performed and maintain with the survey instructions package.

NOTE 4: All survey instruments will be performance checked both prior to and after performing surveys, and both performance checks will be documented. Contact Radiological Engineering for direction if an instrument fails the post performance check.

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SURVEY PACKAGE SURVEY/SAMPLING INSTRUCTIONS FORM (cont)

Package ID: 2000-01Building: T881ASurvey Area: Not ApplicableSurvey Unit: Interior

Survey Unit Description: This trailer was acquired and installed at this site, northeast of Building 881, in June of 1983. The size of this trailer is approximately 14' X 70'.

Survey/Sampling Instructions

NOTE 5: The following MDA requirements are a goal for each survey instrument. The MDA shall not exceed the Investigation Levels outlined in NOTE 6.

- 10 dpm/100 cm² for removable alpha contamination
- 50 dpm/100 cm² for total alpha contamination
- 500 dpm/100 cm² for removable beta contamination
- 2500 dpm/100 cm² for total beta contamination
- 150 dpm/100 cm² for alpha scan
- 7500 dpm/100 cm² for beta scan

NOTE 6: If a survey result exceeds the following investigation levels, contact radiological engineering before proceeding:

- 15 dpm/100 cm² for removable alpha contamination
- 75 dpm/100 cm² for total alpha contamination
- 750 dpm/100 cm² for removable beta contamination
- 3750 dpm/100 cm² for total beta contamination
- 225 dpm/100 cm² for alpha scan
- 11250 dpm/100 cm² for beta scan

An investigation will be performed into the elevated results.

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			ТОТАІ	SURFAC	E ACTIV	ITV SIIDV	/FV DATA 1	FORM			
TOTAL SURFACE ACTIVE Survey Area: NOT APPLICABLE Survey Unit: INTE										4	
Survey U	nit Descriptio	n: This tra	ailer was ac	•			, northeast of	1	_		The size
of this tra	iler is approxin	nately 14'	X 70'.	Total	Surface 1	Instrument	t Data	· · · · · · · · · · · · · · · · · · ·			
Date	/ Time										
Inst. No.: αα							:				
mst. No.: p,y						_ Probe No.:					
Effic	Efficiency (%): α $\beta \gamma$ (cpm/dpm) MDC (dpm/100 cm ²): α $\beta \gamma$					Mat. Area Bkgd: α $\beta\gamma$ $(dpm/100 cm^2)$					$/100 \text{ cm}^2$
MDC	C (dpm/100 cm ² Correction Fa	²): α		βγ	(1/	2/ 1	· · ·				
Cal. I	D					~		Alpha	Beta		
	<u> </u>	Γ									
Sample Number	Location / Description			ts LAB Bkgd (cpm)		Net Counts (cpm)		*Gross Activity (dpm/100 cm ²)		**Net Activity Gross Activity - Mat. Area Bkgd. (dpm/100 cm ²)	
		α	β,γ	α	β,γ	α	β,γ	α	β,γ	α	β,γ
								1			1
)											
					1						
-							<u> </u>	·			
	I						Gross Activi	ity		<u> </u>	<u> </u>
RCT Printed N	**Gross Activity - M. RCT Printed Name Employee #					Aat. Bkg = Net Activity RCT Signature Date					
RCT Technical Supervisor Printed Name E				Employee #			RCT Technical Supervisor Signature			·	

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	REMOVABLE SURFACE ACTIVITY DATA SURVEY FORM										
APPLICABLE Survey Unit Description: This trailer was acquired and installed at this site, northeast of Building 881, in June of 1983. To f this trailer is approximately 14' X 70'. Smear Survey Instrument Data Count Date / Time: Inst. No.: Inst. Efficiency (%): α βγ MDC (dpm/100 cm²): α βγ Inst. BKG: α βγ (cpm) Cal. Due Date: Survey Type: Alpha Beta-Gamma Removable Survey Data Swipe Location / Comments Gross Counts Net Counts Removable Act Counts Cpm (dpm/100 cm/100 cm											
Smear Survey Instrument Data Count Date / Time: Inst. No.: Inst. Efficiency (%): α βγ MDC (dpm/100 cm²): α βγ Inst. BKG: α βγ (cpm) Cal. Due Date: Swipe Location / Comments Gross Counts Cpm Cpm (dpm/100 cm²) Number Description Smear Survey Instrument Data Probe No.: Probe No.: Inst. Efficiency (%): α βγ (cpm) Survey Type: Alpha Beta-Gamma	Building: 1881A										
Count Date / Time:	The size										
MDC (dpm/100 cm²): α βγ Inst. BKG: α βγ (cpm) Cal. Due Date: Survey Type: Alpha Beta-Gamma Removable Survey Data Swipe Number Location / Description Comments Cpm Net Counts Cpm Removable Act (dpm/100 cm)											
MDC (dpm/100 cm²): α βγ Inst. BKG: α βγ (cpm) Cal. Due Date: Survey Type: Alpha Beta-Gamma Removable Survey Data Swipe Number Location / Description Comments Cpm Net Counts Cpm Removable Act (dpm/100 cm)											
MDC (dpm/100 cm²): α βγ Inst. BKG: α βγ (cpm) Cal. Due Date: Survey Type: Alpha Beta-Gamma Removable Survey Data Swipe Number Location / Description Comments Comments Cpm Net Counts Cpm Removable Act Cpm	Inst. No.: Probe No.:										
Swipe Location / Description Comments Gross Counts Copm Comments Comments Comments Copm Comments Co	C. c. (amm)										
Swipe Location / Comments Gross Counts Net Counts Removable Act											
Swipe Location / Comments Gross Counts Net Counts Removable Act Number Description Cpm Cpm (dpm/100 cm											
Number Description cpm Cpm (dpm/100 cr	Removable Survey Data										
α βγ α βγ α	Removable Activity * (dpm/100 cm ²)										
	βγ										
* (GROSS Cts - Inst. Bkg) ÷ (Eff.) = ACTIVITY											
RCT Printed Name Employee # RCT Signature Date											
RCT Technical Supervisor Printed Name Employee # RCT Technical Supervisor Signature Date											

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SURFACE SCANNING DATA SHEET									
Survey Area: NOT A	PPLICABLE	Survey	Unit: INTER	LIOR	Building: T881A				
Survey Unit Description of this trailer is approx	ion: This traile imately 14' X	r was acquired 70'.	and installed	at this site, northe	east of Building 881, in Jun	ne of 1983. The size			
		• •	Scan Instru	ment Data		x			
Date / Time:									
Inst. No.: Probe No.:									
Cal. Due Date:	·	Surve	ey Type:	Alpha Beta-	Gamma				
	<u>.</u>		Scan Surv	ey Data		1.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4			
Sample	Loca	ation /				Scan			
Number Descr		ription		Comments	(dpm/1	$(dpm/100 cm^2)$			
					α*	β,γ*			
	·	W-05-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-							
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	<u> </u>	WEST COLUMN TO THE STATE OF THE							
RCT Printed Name Emplo		Employee #	<u></u>	RCT Signature		Date			
RCT Technical Supervisor Printed	Employee #		RCT Technical Supervis	Date					
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^{*} If an elevated count rate or a sustained audible increase in the count rate is observed during the scan survey, OR the rate meter alarm sounds, THEN: Scan the immediate vicinity to determine the bounds of the elevated activity, and take a "Total Surface Activity" measurement and record. Mark the location of most elevated activity on the surface with a self-adhesive label or equivalent, ensuring that the marking is not applied directly over the point of interest. Further analysis is required by RS Supervision.

SURVEY PACKAGE CALCULATION WORKSHEET

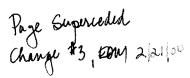
Package I	D: 2000-01		Building: T881A	
Survey Ar	ea: Not Applicable		Survey Unit: Interior	
	nit Description: This tra . The size of this trailer is		and installed at this site, northeas 'X 70'.	t of Building 881, in
X Total S	urface Activity		☐ Media Surface Activity	,
X Remov	able Surface Activity		□ Volumetric Surface Ac	tivity
Δ/σ_{i} Δ/σ_{i} whe		e no survey data i	s available and ∆/σ _s may vary betv iired.	ween 1.0 and 3.0. The
that		om the survey unit	nift and Table 7-1. Sign p is the est will be less than the $DCGL_w$ whe 345	
Тур		d at RFETS are 0.	d $Z_{1-\beta}$ and the selected decision errors and 0.05 respectively. This yie	
Step 4: Calc	culate Number of Data Poir	nts (N) for Sign T	est using the following equation:	
	$=\frac{(Z_{1-\alpha}+Z_{1-\beta})^2}{4(Signp-0.5)^2}=$			
	ease the number of data posible data losses. 23.22*1.2		sure sufficient power of the tests a	nd to allow for
Conclusion:				
A total of 28	data points will be needed	to satisfy MARS	SIM statistical requirements.	Δ.Λ
RICK ROE	BERTS		with the same of t	1122/00
Project RE Printed	Name		Project RE Signature	Date
H.B. EST.	ABROOKS			1/31/18
RESS RE Printed	Name		KESS RE Signature	Date

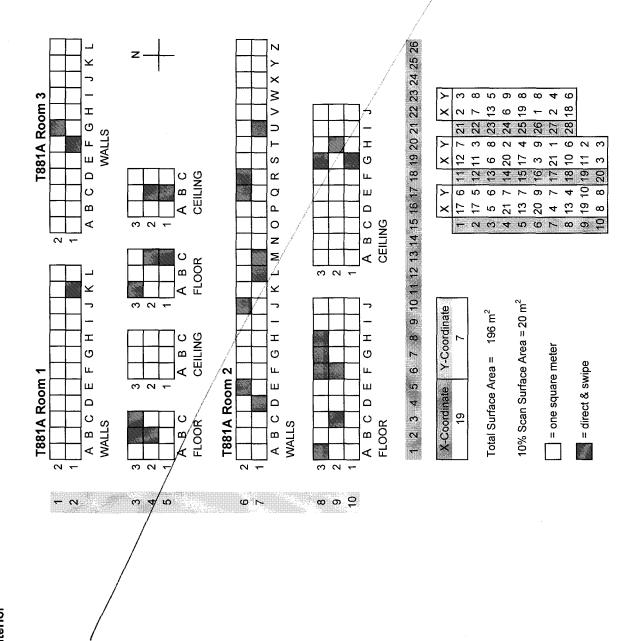
Rev. 9/99

SURVEY PACKAGE SURVEY MAP

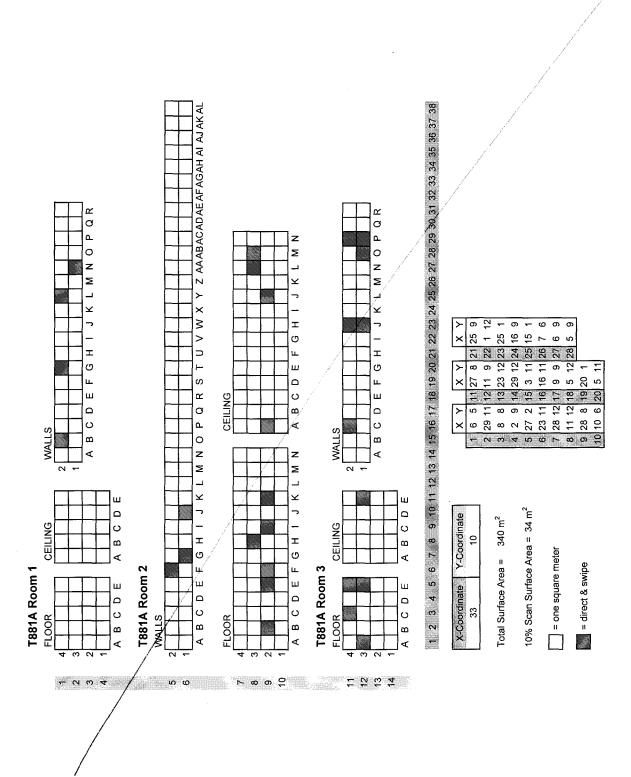
Package ID: 2000-01	Building: T881A
Survey Area: Not Applicable	Survey Unit: Interior
Survey Unit Description: This trailer was acquired at of 1983. The size of this trailer is approximately 14' X 70	nd installed at this site, northeast of Building 881, in June 0'.
Floor Area (m ²): 48	Total Area (m ²): 196
SEE ATTACHED SURVEY MAP	
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Page Superalel Change #4, RM 2/23/00



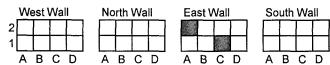
22a/242 3-30

Package ID: 2000-01 Building: T881A Survey Unit: Interior

SURVEY PACKAGE SURVEY MAP Revision 2

Attachment to RSFORMS-16.01-10
Page 14 of 15

T881A West Office



Middle Office

2

3

5 6

7 8

9 10

11 12

13 14 15

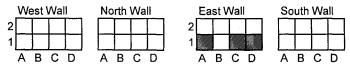
16

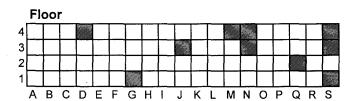


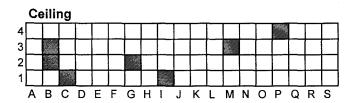
South Wall A B C D E F G H I J K L M N

Note: There is a small closet against the south wall. It was included in the room measurement since its east and west walls are less than 1 meter.

T881A East Office







1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22

X-Coordinate	Y-Coordinate
16	8

Total Surface Area = 284 m²

10% Scan Surface Area = 28.4 m²

= one square meter

= direct & swipe

	Χ	Υ		Х	Υ		X	Υ
1	7	12	11	13	2	21	2	14
2	21	4	12	7	15	22	11	1
3	11	6	13	9	16	23	10	4
4	13	14	14	4	9	24	14	8
5	16	13	15	15	8	25	14	10
6	10	10	16	19	12	26	4	6
7	13	9	17	13	5	27	14	9
8	12	8	18	3	16	28	19	9
9	7	6	19	19	10			
10	2	15	20	17	11			



SURVEY PACKAGE VALIDATION CHECKLIST FORM

Package ID: 2000-01	Building: T881A	Section 1 have
Survey Area: Not Applicable	Survey Unit: Interior	
Survey Type: Reconnaissance Level Characterization	Survey Final Status Survey	ΥX
All Documentation Reviewed for Completion	RCT Supervisor	PRE
Scan Surveys	N	EDW
Total Activity Surveys	N	ENU
Exposure Rate Surveys	N/A	NA
Removable Surveys	2	EDUJ
Media Samples	N/A	WINDOW N/A
Volumetric Samples	N/A	N/A
All Surveys and Samples Accounted For	RCT Supervisor	PRE
Scan Surveys		BOW
Total Activity Surveys	r/	BU
Exposure Rate Surveys	N/A	N/A
Removable Surveys	p/	DOW
Media Samples	N/A	SHOEDLY N/A
Volumetric Samples	N/A	N/A
Comments:		
Kon Worker		(- 12 · 12 · 1
RCT Supervisor Printed Name	RCT Supervisor Signature	Date
RICK ROBERTS LEW D. L. AUE Project RE Printed Name	Project RE Signature	6-12-00
H. B. ESTABROOKS	No constitution of the con	Date Date
RESS Manager Printed Name	RES Manager Signature	Date

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Survey Area:

N/A

Survey Unit:

Interior

Building:

T881A

Survey Unit Description:

Floors, walls, and ceilings of Trailer T881A

8. POST-PERFORMANCE ACTIVITIES

8.1 **Documentation**

Reviewed the above mentioned Survey Package and associated measurement data in accordance with PRO-478RSP-16.04, Radiological Survey/Sample Data Analysis. The following items are noted:

- 1. Various notes are provided on the Survey Package DQA Checklist. See DQA Checklist.
- 2. Various notes are provided within the Survey Package. See Survey Package.
- 3. DQA Checklist should have location to input Survey Area, Survey Unit, Building and Survey Unit Description to ensure improved tracking.
- 4. Section 7.2.2 Accuracy, of RSP-16.04 should be rewritten to provide usable accuracy analysis process. Interoffice Memorandum REVISION TO PRO-478-RSP-16.04, RADIOLOGICAL SURVEY/SAMPLE DATA ANALYSIS – EDM-001-00 was written and concurred on to provide a usable accuracy analysis process.
- 5. Spreadsheets provided to perform statistical calculations.
- 6. Several forms have been generated to replace forms from RSP-16.02. RSP-16.02 should be revised to reflect this change/improvement.
- 7. Total number of data points is very conservative. Using MARSSIM guidance it can be shown that significantly less data points are statistically acceptable. See spreadsheets.
- 8. Survey maps need improvement. Methodology employed is one that was used prior to RSP-16.01 approval. Recommend scale maps with grid overlays or CAD drawing in the future. See B779 Closure Project maps as examples.
- 9. See data sheet(s) for corrected data.

Prepared by: 5 N. My 3.8.00

(09/30/99)

APPENDIX A

Page 1 of 1

DQA Checklist

§	Item	Performed By (Initials/Date)	Comments (number & attach)
7.1	Data Verification	EMY /3-3-00	
7.1[1]	DQOs implemented as prescribed	Em / 3-3-00	
7.1[2]	All required supporting documents present	EMM/3-3-00	
7.1[3]	Outliers / anomalies addressed	EDM / 3-3-00	nne
7.2	Data Validation	Em /3-3-00	
7.2.1	Survey/Sample Precision		see spreadsheets
7.2.2	Survey Accuracy	EM 3-8-00	no sample taken
	Sample Accuracy	NA	no sample taken
7.2.3	Data Representative of survey unit	BM /3-3-00	
7.2.4	Survey/Sample/Scan Completeness	EDM / 3-8-00	100 %
7.2.5	Data Comparable to related units	19mm / 3-3-30	ye group B
7.3	DQA complete	Emu 3-8-50	ges, Group B see spreadsheete
7.3[3]	Any measurement > DCGL _w ?	Emy /3-8.00	no
7.3[4]	Mean > DCGL _w	N/A	N/A
7.3.[5]	Any measurement > maximum DCGL	N/A	NA
7.4	Evaluation	NIA	N/A
7.4[1][D]	New survey package (if req'd)	NA	NA
7.4[1][E]	Radiological improvement report (if req'd)	NA	N/A
7.4[2]	Verify documentation complete		N/A
8.0	Peer review	do 6/13/00	NONE .
	Package submitted to project management	Dry (friting)	
9.1	Records to Records Center (copy to project files)	EM (8-87-00)	

NOTE: The DQA Flow Chart (Appendix B) is provided as aid to illustrate the DQA process when performing survey/sample data analysis activities describe in this procedure.

Removable Activity

(dpm/100 cm²) Alpha

_	Survey Area - N/A	Survey Unit - Interior	Building - T881A
•	6.0-	1.5	6.0

Survey Unit Description - Floors, walls and ceilings of Trailer T881A

Removable Contamination Data Sheet

20 dpm/100 cm² 28

DCGLw

Std Dev Mean

-0.9 0.0

-0.9 1.5

No measurement exceeds the DCGLw

 0.3 dpm/100 cm^2 1.5 dpm/100 cm^2

0.0

(dpm/100 cm²) Beta Removable Activity

Survey Area - N/A	Survey Unit - Interior	Building - T881A
9.7-	-22.8	-31.6

Survey Unit Description - Floors, walls and ceilings of Trailer T881A Removable Contamination Data Sheet DCGLw

-1.4 dpm/100 cm² 20.5 dpm/100 cm² 1000 dpm/100 cm² 28 Std Dev Mean

ctivity	Alpha
⋖	²
ırface	CE
Sur	100
otal	/wa
2	D

-15.0	Survey Area - N/A	a - N/A				
0.0	Survey Unit - Interior	t - Interior				
-12.3	Building - T881A	F881A				
-9.1	Survey Uni	t Description	on - Floor	s, walls an	d ceilings o	Survey Unit Description - Floors, walls and ceilings of Trailer T881A
-18.2	Total Surfa	Total Surface Activity Data Sheet	Data She	et		
-18.2	DCGLw	100	100 dpm/100 cm ²	·m²		
-18.2	_	28				
12.3	Mean	-5.4	-5.4 dpm/100 cm ²	·m²		
-15.0	Std Dev	10.0	10.0 dpm/100 cm ²	:m ²		
-12.3						
-3.2	No measurement exceeds the DCGL _w	ement exc	eds the D	CGLW		
5.9	No measurement exceeds 75% of the the	ement exc	eds 75%	of the the	DCGL _W	
-15.5						
-3.2	Precision					
0.0						
18.2	Location	ပ်	ပ်	ပ-ပ	(C ₁₊ C ₂)/2	RPD
0.0	J-3F	-12.3	-9.3	ကု	-10.8	27.77778
-5.9	N-3F	-18.2	2.8	-21	7.7-	272.7273
-9.1	M-4F	-9.1	9.3	-18.4	0.1	-18400
6.4	Q-2F	-18.2	25.1	-43.3	3.45	-1255.072
-15.0	D-4F	-15.0	25.1	-40.1	5.05	-794.0594
-5.9						
3.2	Precision (F	(PD) is out o	of specifica	ition due to	Precision (RPD) is out of specification due to low value survey	ırvey
-5.9	measurements	nts				
3.2						
0.0	Recalculated N	N De				
-20.9	$\Delta/\sigma_s = (DCGL-LBGR)/\sigma_s$	sL-LBGR)/₀	·ω			
	$\Delta/\sigma_{\rm s} = (100-50)/10.0$	50)/10.0				
	$\Delta/\sigma_s = 5.00$ (default to 3)	(default to 3	<u> </u>			
	Sign p = 0.998650	198650				
	N = 10.88 $10.88*1.2 = 13.05$	13.05				
	N = 14) :				

Activity) Beta
Surface A	1/100 cm ²
Total	mdp)

101 -137 -137 166 215 68 68 -121 -91 59 3	Survey Area - N/A Survey Unit - Interior Building - T881A Survey Unit Description - Floors, walls an Total Surface Activity Data Sheet DCGL _w 5000 dpm/100 cm ² n 28 Mean 50.2 dpm/100 cm ² Std Dev 138.6 dpm/100 cm ² Std Dev 138.6 dpm/100 cm ² Std Dev 138.6 dpm/100 cm ² Ccation C ₁ C ₂ C ₁ -C ₂ J-3F No measurement exceeds 75% of the the Precision Location C ₁ C ₂ C ₁ -C ₂ J-3F J-3F N-3F Survey Unit - Interior Ccation Ccati	a - N/A 881A 1 Description 5000 28 50.2 138.6 9ment exceptment exc	terior A scription - Floors, w ctivity Data Sheet 28 50.2 dpm/100 cm² 138.6 dpm/100 cm² nt exceeds the DCG nt exceeds 75% of t	s, walls an et :m² :m² :m² cGLw of the the	id ceilings o DCGL _W (C ₁₊ C ₂)/2 167	Survey Area - N/A Survey Unit - Interior Building - T881A Survey Unit Description - Floors, walls and ceilings of Trailer T881A Total Surface Activity Data Sheet DCGL _W 5000 dpm/100 cm² n 28 Mean 50.2 dpm/100 cm² Std Dev 138.6 dpm/100 cm² Std Dev 167 Std Dev 168 Cm² Std Dev 168 Std Dev 16
-10 23 85 -215 65 -212 68 444	M-4F 46 Q-2F 215 D-4F 101 Precision (RPD) is out of measurements $A/\sigma_s = (DCGL-LBGR)/\sigma_s$ $\Delta/\sigma_s = (5000-2500)/138.6$	46 215 101 PD) is out orts rts rd N -2500)/138	157 47 157 67 of specifice	-1 -1 58 34 ation due to	M-4F 46 47 -1 46.5 -2.1 $\alpha_{\rm c}$ 00.2 $\alpha_{\rm c}$ 00.4 $\alpha_{\rm c}$ 0	-2.150538 31.1828 40.47619 urvey

 $\Delta/\sigma_s = 18.04$ (default to 3) Sign p = 0.998650 N = 10.88 10.88*1.2 = 13.05 N = 14 K. K.

Survey Area: NA Survey Unit: NTERIOR Building: 188/ A
Survey Unit Description

SURVEY SIGNATURE SHEET

Removable /Total Surface Activity Performed By

			
RCT Printed Name		RCT Signature	Z - Z 5 - O 0 Date
RCT Printed Name		- KCI əlgilalüle	Date
A. Packer RCT Printed Name		W Yark	2-29-00
RCT Printed Name		RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date
	A		
RCT Printed Name	Employee #	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date
	1		

Quality Control Measurements Performed By

A. PARKER		a Pah	3-1-00
RCT Printed Name		() RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date
	N		
RCT Printed Name	Employee #	RCT Signature	Date
	A		
RCT Printed Name	Employee #	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date

Survey Reviewed By

Row Worster		2-2-00
RCT Foreman Printed Name	RCT Foreman Signature	Date

Page ____ of _____

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Survey Area: NA Survey Unit: Interior Building: T881A

Survey Unit Description

IMERIOR

INSTRUMENT DATA SHEET

Removable Contamination Survey Instrument Data

Manufacturer	Eberline	Ebertine	Eberline	Epoline		
Model	SAC-4	BCA	SAC-4	BC4		
Inst. ID#	1	2	3	4	5	6
Serial #	1170	928	1171	868		
Cal. Due Date	6.30.00	3.27.00	7.11.00	7.12.00		
Analysis Date	2.29.00	2.29.00	2.29.00	2.29.00	/	
Instrument Bkg cpm						\vee \wedge
10-min count time	0.3	42.4	0.0	38.7		
Instrument Eff (%)	33	25	33	25		
Instrument MDA						
2-min count time Apm	8.3	71.8	4.1	68.8		

Total Surface Activity Instrument Data

nufactur	er	N.E.	Tech.	N.E.	Tech.	N.E.	Tech.	_					
Model		Ele	Electra		ectra	Ele	ectra		,			/	
Inst. ID #			7	8		9		1	0	11		1	2
Serial # / Probe #		1370	1158	2385	1931	2385 1931							
Cal. Due Date		4.20). 50	6.1	14.00	6.1	6.14.00			N	/		
Survey Dat	e	2.20	9,00	2.29.00		3.1.0				/	μ		
Alpha Bkg 90-sec Am count time	Beta Bkg 90-sec cpm count time		384	3.0	400	2.7	495						
Alpha Eff (%)	Beta Eff (%)	22.0	30.66	21.49	29.94	21.49	29.94						
Alpha MDA 90-sec Apm count time	Beta MDA 90-sec Apm count time		248.7	39	259.8	37.5	288.3						

Page 2 of 1

后()

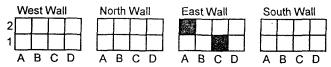
Package ID: 2000-01 Building: T881A Survey Unit: Interior

SURVEY PACKAGE SURVEY MAP Revision 2

Attachment to RSFORMS-16.01-10

Page 14 of 15

T881A West Office



Middle Office

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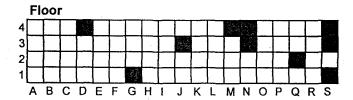


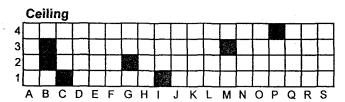


Note: There is a small closet against the south wall. It was included in the room measurement since its east and west walls are less than 1 meter.

T881A East Office

West Wall	North Wall	East Wall	South Wall
2		2	
1		1 3 36-	
ABCD	ABCD	ABCD	ABCD





16 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22

X-Coordinate	Y-Coordinate		X	Υ		Χ	γ
14	8	1	7	12	11	13	2
		2	21	4	12	7	1
Total Surface Ar	ea = 284 m²	3	11	6	13	9	1
•		4	13	14	14	4	ç
10% Scan Surfa	ce Area = 28.4m^2	5	16	13	15	15	8

= one square meter

= direct & swipe

	Х	Υ		Х	Υ		X	Υ
1	7	12	11	13	2	21	2	14
2	21	4	12	7	15	22	11	1
3	11	6	13	9	16	23	10	4
4	13	14	14	4	9	24	14	8
5	16	13	15	15	8	25	14	10
6	10	10	16	19	12	26	4	6
7	13	9	17	13	5	27	14	9
8	12	8	18	3	16	28	19	9
9	7	6	19	19	10			
10	2	15	20	17	11			

Package ID: 2000-01

Building: T881A

Survey Unit: Interior

SURVEY PACKAGEAttachment to RSFORMS-16.01-10

SURVEY MAP

Page 14 of 15

Revision 2

T881A West Office

West Wall	North Wall	East Wall	South Wall
2			
1			
ABCD	ABCD	ABCD	ABCD

Middle Office

West Wall	North Wall	East Wall			
2					
1					
ABCD	ABCDEFGHIJKL	ABCD			

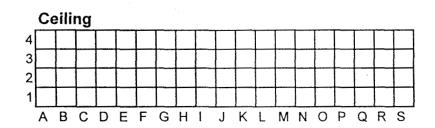
	So	uth	Wa	all										
2	Г	Π		Π	Π	Π								
1				T										
	\overline{A}	В	С	D	E	F	G	Н	ī	J	K	L	М	N

Note: There is a small closet against the south wall. It was included in the room measurement since its east and west walls are less than 1 meter.

T881A East Office

West Wall				North Wall			East Wall						South Wall				
2				Т	T		2										Ì
1							1										1
7	A B (C D	•	A I	ВС	D		A	В	С	D		Α	В	С	D	-

Floor SCAN LOCATIO										M.	5								
4									-				X	X					X
3			X	X	X	X	X	X	X	X	X	X	X	X	X	X	\times	X	X
2			X	X											X	X			
.1			X	X											X	X			X
	A	В	С	Ď	E	F	G	Н	ī	J	Κ	L	M	N	0	þ	Q	R	S



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22

4 0 11

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Final Survey NE Electra Scan & Investigation Survey Form

Survey	Area:	NIA		Survey U	nit:	ERIOR	Building: T88	201 A		
Survey	Unit Des	cription:	In	TERIOR		7-10-10		100	71 K	
ļ .		Ele	ectra DP-6 B	eta	T		Electra D	P-6 Alpha	7-17	
Loc. ID#	RCT ID#	Inst. ID#	Elevated Audible observed? "Y" or "N"	60-sec PAT (dpm/100cm2)	RCT ID#	Inst. ID#	4-sec Audible observed? "Y" or "N"	30-sec Static (gcpm)	90-sec PAT (dpm/100cm ²)	
C.1.F	2	8	7	N/A	2	8	N	N/A	NA	
C.2.F	2	8	N		2	8	N			
C.3.F	2	8	N		2	8	N			
0.1.5	2	8	N		2	8	\mathcal{N}_{-}			
D.2.F	2	8	N		2	8	\mathcal{N}			
D.3.F	2	8	N		2	8	\mathcal{N}			
E.3F	2	8	N		2	8	N			
F.3.F	2	8	N		2	8	N			
6.3.F	2	8	N		2	8	N	,		
H.3.F	2	8.	N		2	8	N	N/A		
1.3.F	2	8	\mathcal{N}		V	8	Y	2		
J.3,F	2	8	N		2	8	N	N/A		
K.3.F	2	8	N		2	8	N	NA		
L.3.F	2	8	N		v	8	Y	2		
M.3.F	2	8	N		2	8	N	N/A		
M.4.F	2	8	N		2	8	N	•		
N.3.F	2	8	N		2	8	\mathcal{N}			
N.4.F	2	8	N		2	8	N			
0.1.F	2	8	\mathcal{N}		2	8	\mathcal{N}			
0.2.F	2	8	N		2	8	\mathcal{N}			
0.3.F	2	8	N		2	8	\mathcal{N}			
P.1.F	2	8	N		2	8	\mathcal{N}			
P.2.F	2	8	N		2	8	N		·	
P.3.F	2	8	N		2	8	N			
Q.3.F	2	8	N	*,	2	8	N	<u> </u>	V	
R.3.F	2	8	N	NA	2.	8	N	N/A	N/A	

Final Survey NE Electra Scan & Investigation Survey Form (Continuation Sheet)

Survey	Area:	N/A		Survey Ur	nit: [m	FOIDO		Building: T881 A				
Survey	Unit Des	cription:	1	NTERIOR	7711			100)			
	1	El	ectra DP-6 B	eta	ī		Electra D	P-6 Alpha				
Loc. ID#	RCT ID#	Inst. ID#	Elevated Audible observed? "Y" or "N"	60-sec PAT (dpm/100cm2)	RCT ID#	Inst. ID#	4-sec Audible observed? "Y" or "N"	30-sec Static (gcpm)	90-sec PAT (dpm/100cm²)			
5.1.7	2	8	\sim \sim	N/A	2	8	N	NA	NA			
5.3.F	1	8	N	N/A	2	8	N	N/A N/A	NA			
5.4.F	2	8		N/X	2	8	N	NA	N/A N/A N/A			
,						-						
					N							
				·		/						
						A						
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		/						.,				
-												

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Final Survey NE Electra Scan & Investigation Survey Map

Survey Area:	Survey Unit: INTERIOR	Building: T881 A
Survey Unit Description: INTER 18	n Floor	
RCT Initials/Date: Q 2/29/00	RCT Initials/Date:	RCT Initials/Date:
Refer to the Final Survey NE Electra Scan & I		•
Legend: "R"- Root, "W" - V	West Wall, "S" – South Wall, "E" – I "C" –Ceiling, "F" - Floor	East Wall, "N" – North Wall
¥ I-3		3
		N /
A		'_n
	,	
* Designates corner closest to A-1 poin	t of reference	

Electra alpha scans were performed at the locations detailed on the survey map(s). All required accessible areas were scanned. All initial scan results were <225 dpm/100cm², unless noted on the survey form.

Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the survey form.



Final Survey NE Electra Scan & Investigation Survey Form

Survey Area: Survey Unit: INITE OLDER Building: GOLA									
1	1	JA			IN	TERI	02	188	1 A
Survey	Unit De	scription:	TATEO	im OA					
	T	El	ectra DP-6 B	ion QC eta	Í		Electra I	P-6 Alpha	
Loc. ID#	RCT	Inst.	Elevated	60-sec PAT	RCT	Inst.	4-sec Audible	30-sec Static	90-sec PAT
	ID#	ID#	Audible observed? "Y" or "N"	(dpm/100cm2)	ID#	ID#	observed? "Y" or "N"	(gcpm)	(dpm/100cm ²)
J.3.F	8	9	N	NIA	8	9	N	NA	NA
27. 1	8	9	N	NIA	8	9	У	4	N/A N/A
战士	ક	9	N	NA	8	9	Y	6	NIA
, शर्मा									
								/	
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	·								
, '									
·				,	V				
						A			
						/		•	
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							-		
	/			``					
						-			



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Final Survey NE Electra Scan & Investigation Survey Map

	N/4	Survey Unit:	ELIOR	Building:	81 A
Survey Unit De	Escription: Interior	- OC			
RCT Initials/Da	Ω	,	NA	RCT Initials/Date	. NA
Refer to the Final	Survey NE Electra Scan & I	nvestigation Survey Form	n for instrumentation,	, surveyor & approval infe	ormation.
Lege	nd: "R"- Roof, "W" - V	West Wall, "S" – Sout "C" –Ceiling, "		st Wall, "N" – North	Wall
	·				
				(2)	
,	J-3-F		9-	2-F3	
	N /		4		
	^ ^			A	
* Designates c	orner closest to A-1 poin	t of reference			

Results/Comments:

Electra alpha scans were performed at the locations detailed on the survey map(s). All required accessible areas were scanned. All initial scan results were <225 dpm/100cm², unless noted on the survey form.

Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the survey form.

Survey Area: N/A Survey Unit: INTERIOR Building: T88/A

Survey Unit Description

Interior

	ID#	#	t ID #		Counts pm)		Counts pm)	Remova (dpm	ble Activity /100cm2)
		α	β	α	β	α	β	α	β
hest 1	Office	ريا							
A.2.E	00	1	2	0	40.5	3	-1.9	-0.9	-7.6
C1.E	1	3	4	٠5	33	0.5	-5.7	1,5	-228
D.4.F			2	0	34.5	3	-7.9	-0.9	-31.6
Ceilir	ng					*		على المالية الم	
C-1-C	V	3	4	0	46	430	7.3	960,90	29.2
B-2.C			2	15	41.5	.2	-0.9	0.6	-3.6
B.3.C		3	4 2	,5	39.5	.5	0.8	1.5	3.2 03.13.3 -17.0
3.2.C		/	2		38 39.5	.7	-4.4	2.1	073-13-3-17.6
$I \cdot \cdot C$		3	4	.5	39.5	,5	0.8	1.5	11 3.2
P.4.C	l. 	1	2	0	43.5	,5 ,7 ,5 -3	1./	-09	4.4
Floor		- 23							
G.L.F		3	4	0	38.5 39.5 38	0	-0.2	0	-0.8
J.3. F	-	1	2		39.5	3	-2.9	-0.9	-11.6
M.4.F	 _	3	4	.5	<i>3</i> 8	,5	-0.7	1,5	-2.8
N.3.F		1	2		48	17	0853 5.C	2.1	921-2 22.4
N.4.F	ļ	3	4	0	44.5	0	175.8	0	23.2
Q-2.F	ļ	1	2	,5	35.5	.2	-6.9	0.6	-27.6
S.1.F	ļ	3	4 2	0	50.5	0	11.8	0, .	47.2
<u>S.3.F</u>				,5	35	.2	-7.4	0.6	-29.6
S.4.F	<u> </u>	3	4		50.5 35 36	0	-2.7	0	-10.8
East (ffice								
AILE	100	ΙĮ	12		45.5	.7	3.1	2.1	12.4
C.I.E	ļ	3	4	.5	47.5	.5	8.8	1.5	35.2
D.I.E	0,0		2	٠5	43.5	.2	1.1	0.6	4.4
100n C. I. E	Hice	10	00/	Office					
C.1.E	00	3	4	0	38	0	-0.7	0.	-2.8
K.1.5	ļ	1/	2	.5	35	1-2	3.9 -1.4	0.6	11.Z
<u>G.1.5</u>	 	3	424	15 15 0	35 41.5 37	,5 -,3 .5	78-3.9 -7.4 2.8 -5.4	1.5	11.2
12.1.5		11	12		37	-,3	-3,4	-0.9	-21.6
t.1.N		3	4	,5	41	.5	2.3	1.5	9.2

Page 10 of 11



Survey Area: NA Survey Unit: NERIOR Building: 7-851A

Survey Unit Description

NTERIOR WALLS CERIMG, FLORE

Total Surface Activity Data Sheet													
Sample location	RCT ID#	Ins	ID#	· · ·	ount time		AB pm)	1	Count		ounts om)		ctivity 00cm2)
		α	β	α	β	α	β	α	β	įα	β	α	β
D-45	1	7	7	90	90	ر. ي	429	2.7	440	-3.4	7	-15.0	101
C-IF	\	١	j	90	90	2.7	459	2.7	417	D, O	-42	0.0	-137
1-35				90	90	4.0	429	1.3	481	-2,7	52	- 12.3	170
M-4F	7			90	90	3.3	455	1.3	169	- 2.0	14	- q. v	46
N-4F				90	90	4.0	443	2,0	473	-4.0	10	-18.2	33
N-3F				90	90	7.3	440	3.3	191	- 4.0	5"1	~ 18.2	166
0-25				90	90	3 ، ز	409	1.3	475	- 4.0	44	-18.2	215
S-1F				90	90	3. 3	141	4.0	142	2.7	21	12.3	48
5-35	7			90	90	7.3	127	4.0	141	-3.3	14	~15.0	46
5-4F				90	90	4.0	122	1.3	473	-2.7	51	-12.3	166
A-ZE				90	90	6.7	420	4.0	383	-0.7	37	-3.2	-121
C-1 F=			1	90	90	6.0	342	7.3	347	1.3	5	5.9	16
TIONE DIFFEE				90	90	4.7	372	3.3	348	-3.4	-4	-15.5	-) 3
5-15	1		1	90	90	6.0	384	5.3	354	-0.7	-23	-3.2	-91
G-1 S			1	90	90	3.3	357	3.3	375	0.0	18	0.0	e* a
K-15				90	- 90	4.7	349	10.7	370	4.0	1	18.2	3-261412
m-25				90	90	4.0	301	4,0	325	0.0	28	0.0	91
C-1 E				90	90	3, 3	299	2,0	337	·· 1. 3	38	-5.9	124
BAST OFFICE A-1 E			1	90	90	7 : 7	314	0.7	314	-2.0	-3	-9,1	-10
C- I Eme				90	90	3. 3	301	4.7	308	1.4	7	6.4	2.3
7-1 E				90	90	80	329	4.7	355	-3.3	20	-15.0	85
3.20				90	90	3.3	409	2.0	358	-1.3	-11	-5.9	-34
B-3 C				90	90	3.3	423	4.0	357	0.73/2/ 1.5m		1/2/00 - 32	~215
c : /	_/_			90	90	3.3	312	2.0	402	-1.3	20	~5.4	1.0
6-263	yer \			90	- 90	3.3	381	4.0	314	0. 2 12		3 2 12	~ 212
1 1 63	2/00	1		90	90	4.0	372	4.0	353	0.0	21	0.0	68
M-3 C	ı	ז	7	90	90	4.0	314	4.7	450	0.7	134	3.2	444
7-40		7	7	90	90	7.3	345	2-7	422	-7.0	77	-20.9	251 1
-3.FQC	2	9	9	90	90	6.0	432	40	481	-2	49	ma 6.0 (i)	19600
V.3.FQC	2	G	9	90	90	4.7	465	5.3	469	0.6	4	W1-8128	V-1
14.EQC	2	9	9	90	90	2.7	467	4.7	481	\hat{a}	14	m 60 93	Stort In
·2.FQC	2	9	9	90	90	6.7	436	1.3	483	-5.4	47	3 12/50 135.	188 30101
-4.4 QC	7_	9	9	90	90	8.7	447	3.3	467	-5.4	20	00011 11:35	80 72
	L	1020110	<u> </u>	1	<u></u>	0.1	1		1 W	'	_ &C C	1016.13	to 00 3749°

M

Survey Area: Na Survey Unit: Intended Building: T881A

Survey Unit Description

Of Checks (Scan)

SURVEY SIGNATURE SHEET Removable /Total Surface Activity Performed By **RCT Printed Name** Employee # **RCT Signature** Date **RCT Printed Name** Employee # RCT Signature Date **RCT Printed Name** Employee # **RCT Signature** Date RCT Printed Name Employee # RCT Signature Date RCT Printed Name Employee # RCT Signature Date **Bet Printed Name** Employee # RCT Signature Date **RCT Printed Name** Employee # RCT Signature Date

Quality Control Measurements Performed By

M LAWSON		Malain	3-8-00
RCT Printed Name		RCT Signature	Date
:			
RCT Printed Name	Employee #	RCT Signature	Date
	Ŋ	1	
RCT Printed Name	Employee#	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date

Survey Reviewed By

Kos Warster			3-13-00
RCT Foreman Printed Name	Employee #	RCT Foreman signature	Date

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Page _____ of ____

Survey Area: NA Survey Unit: Three Building: TSIA

Survey Unit Description

QC Checks (SEAN)

INSTRUMENT DATA SHEET Removable Contamination Survey Instrument Data Manufacturer Model Inst. ID # 1 2 3 4 5 6 Serial # Cal. Due Date Instrument Bkg cpm

Total Surface Activity Instrument Data

Manufactur	er	N.E.	Tech.	N.E.	Tech.	N.E.	Tech.						
Model		Ele	ctra	Ele	ctra	Ele	ectra						
Inst. ID#	,		7		8		9	1	0	1	1	1	2
Serial # / P	robe #	1395	1368										
Cal. Due D	_		-00				10						
Survey Dat	е	3-5	8-00				10	N				_	
Alpha Bkg 90-sec m count time	Beta Bkg 90-sec com count time	2.0	366										
Alpha Eff (%)	_ `	20:89	53.68										
Alpha MDA 90-sec dym count time	Beta MDA 90-sec dym count time	34.4	259.7										

10-min count time
Instrument Eff (%)
Instrument MDA
2-min count time

Final Survey NE Electra Scan & Investigation Survey Form

Survey Area: NA Survey Unit: Building: T881A									
Survey	Unit Des		C 0	00.0	701	ZCIER		1881H	
		Ele	ectra DP-6 Be	QC Scr	1102		Electra D	P-6 Alpha	
Loc. ID#	RCT ID#	Inst. ID#	Elevated Audible observed? "Y" or "N"	60-sec PAT (dpm/100cm2)	RCT ID#	Inst. ID#	4-sec Audible observed? "Y" or "N"	30-sec Static (gcpm)	90-sec PAT (dpm/100cm ²)
E3F		7	N	NA		7	7	20	NA
L3F1		7	N	NA		7	Y	+	AM
				,				/	
								 	
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Final Survey NE Electra Scan & Investigation Survey Map

Survey Area:	NA	Survey Unit:	INTERIOR	Building: TS31A	
Survey Unit I	Description:	NTERIOR FLOO			
RCT Initials/I		Aloc RCT Initials/D			
				RCT Initials/Date: ion, surveyor & approval informat	tion
		"W" - West Wall, "S"	- South Wall, "E" -	East Wall, "N" - North Wa	
		"C" –Ce	iling, "F" - Floor		
	L-3	F			
				N	
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		•			
Decianates e	parmor alocast to A				

Results/Comments:

Electra alpha scans were performed at the locations detailed on the survey map(s). All required accessible areas were scanned. All initial scan results were <225 dpm/100cm², unless noted on the survey form.

Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the survey form.

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3-53 c:\Final Survey\DPElectraSurvey020900.doc

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Survey Area: NA	Survey Unit: THE HOW Building:	7881A
Survey Unit Description	n Interior	

SURVEY SIGNATURE SHEET

Removable /Total Surface Activity Performed By

1	Offach	3-8-00
	RCT Signature	Date
	O .	
Employee #	RCT Signature	Date
Employee #	RCT Signature	Date
N		
Employee #	RCT Signature	Date
A		,
Employee #	RCT Signature	Date
-		
Employee #	RCT Signature	Date
Employee #	RCT Signature	Date
	Employee #	Employee # RCT Signature Employee # RCT Signature Employee # RCT Signature Employee # RCT Signature

Quality Control Measurements Performed By

	•		
RCT Printed Name	Employee #	RCT Signature	Date
RCT Printed Name	Employee #	Ret Signature	Date
	N 14		
RCT Printed Name	Employee #	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date

Survey Reviewed By

Ron Werste			3-3-00
RCT Foreman Printed Name		RCT Foreman Signature	Date

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Survey Area: NA Survey Unit: TATELION Building: T881A
Survey Unit Description

INSTRUMENT DATA SHEET

Removable Contamination Survey Instrument Data

Manufacturer	Eberline	Eberline				
Model	SAC4	BC 4				. /
Inst. ID #	1	2	3	4	5	6
Serial #	1170	928				
Cal. Due Date	6.30.00	3.27.50				
Analysis Date	38.00	3.8.00		1		
Instrument Bkgcpm 10-min count time	0.4	41.4				
Instrument Eff (%)	.33	.25		A		
Instrument MDA 2-min count time dym	9	71				

Total Surface Activity Instrument Data

·						
Manufacturer	N.E. Tech.	N.E. Tech.	N.E. Tech.			
Model	Electra	Electra	Electra			
Inst. ID #	7	8	9	10	11	12
Serial # / Probe #						
Cal. Due Date						
Survey Date				A	·	
Alpha Bkg Beta Bkg 90-sec cym 90-sec cym count time count time						
Alpha Eff Beta Eff (%)						:
Alpha MDA 90-sec Apm count time Beta MDA 90-sec Apm count time						



Survey Area: NA	Survey Unit: INTERIOR Building: T881A
Survey Unit Description	
•	INTERIOR

Removable Contamination Data Sheet										
Sample Location	RCT ID#	inst #			Gross Counts Net Counts Removable Adaptive (gcpm) (cpm) (dpm/100cm		S Net Counts Removable A (cpm) (dpm/100c			
		α	β	α	β	α	β	α	β	
M.3.C	1		2	15	40.5	, ,	-0.9	0.30	-3.6	
M-2.5	i		2	12	36		-0.9 -5.4	0.30	-3.6 -21.6	
101.5.7			4		30			0.00	/	
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Page <u>3</u> of <u>3</u>

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SURVEY PACKAGE COVER SHEET

Package ID: 2000-01	Building: T881A				
Survey Area: Not Applicable	Survey Unit: Exterior				
Survey Unit Description: This trailer was acquired and installed at this site, northeast of Building 881, in June of 1983. The size of this trailer is approximately 14' X 70'.					
Building Information:	The second secon				
Survey Type: Reconnaissance Level Characterization	n Survey Final Status Survey X				
Building Type: Type 1 X Type 2 □ Type 3 □					
Classification: Class 1 □ Class 2 □ Class 3 X U	nknown 🏻				
Contaminants of Concern: Plutonium X Uranium	K Other 🗆				
Justification for Classification: This facility contamination.	has no known history of radio	ological			
Special Support Requirements: Ladder, mainstrumentation may be required for surveyin upper walls and ceilings on the interior and upper walls are ceilings.	g in overhead areas. Overhead	d areas include			
Special Safety Precautions: Access to overlead caution when working in overheads.	nead areas may require additio	onal controls. Use			
Isolation Controls:					
Level 1 Level 2 X N/A					
Labeling Requirements: The location where	fixed and remarchle currence	are performed will			
be marked using a sticker or a marker and the	•	-			
or marked using a science of a market and the	if cross referenced to the surv	oy resures.			
Survey Package Implementation:					
	0.0				
RICK ROBERTS		1/20/20			
Radiological Engineer Printed Name	Radiological Engineer Signature	Date			
NOT APPLICABLE	N/A	N/A			
REFS Manager Printed Name	REFS Manager Signature	Date			
H. B. ESTABROOKS		11.3111			
RESS Manager Printed Name	RESS Manager Signature	Date			
Survey Package Closure:					
DICK DODEDTG 50M 6/50 00					
BEIC D MKAMEY		31307			
RESS Radiological Engineer Printed Name	SS Radiological Engineer Signature	Date			
NOT APPLICABLE	//A	N/A			
REFS Manager Printed Name	FS Manager Signature	Date			
H.B. ESTABROOKS	XIM abother	18/3 MA			
RESS Manager Printed Name	ESS Manager Signature	Date			

08/3/00

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SURVEY PACKAGE TRACKING FORM

Package ID: 2000-01		Building: T881A			
Survey Area: Not Appl	icable	Survey Unit: Exterior			
Initiator/ Date	Release Date	Validation Date	Closure Date		
MAN 1/31/03	1121126	2209 6 3 32	1000 100 ft fair		

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SURVEY PACKAGE TRACKING FORM

Package ID: 2000-01		Building: T881A			
Survey Area: Not Appli	cable	Survey Unit: Exterior	A CONTRACTOR OF THE CONTRACTOR		
Initiator/ Date Release Date		Validation Date	Closure Date		
AM 1/31/00	Harpe.	229 5 3 hr	100 pm 10 /3 /00		
	And Male Area of the Area and				

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SURVEY PACKAGE CORRECTION/CHANGE HISTORY FORM

Package ID: 2000-01		Building: T881A		
Survey Area: Not Applicable		Survey Unit: Exterior		
Change #	Description		Initiator/ Date	PRE
1	Perture desa durange ja	STATE STATE	100	
	Mile of the second	<u> 1810-s</u>		
2	Downson Samuel part had	The second of th		
	RESPONDENCE STATE OF	1	13654 26.60	112
2	Sur My Parish Re		The Course	<u> </u>
4	Survey May Revised R	lisin L	MM 21240	
5	Some May Remark 1	Service Company	- MASSING	1999 <u> </u>
6	Porturn Post Sampling 15		MAN 3/14/00	
	Letter RSR-003-00 dete	1 3/9/00		
	(See , 8, , + 242)			
7	2 samples & 1 &C sample reque	ied per	RAM / 4/1/00	- ولك
	Characteryation Package Supples	₩.		
	Sampling and Analysis of Room			
	from Groups 3 & C for Isato			
8	Original Survey Map would to		617/00	d-
	Survey of walls Revision 2		·	
	perform survey of roof -> Re			
	not weed			
9	Roof survey / sampling perfors	med per	EDLY 6/1/00	d
	Letter Emy-003-00 (p.86	of 242)		
JO	Corrected Scan requiremen	t	Rom / 6/20/00	1
	0			E to
		,		

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INITIAL SURVEY PACKAGE DESIGN FORM

Package ID: 2000-01		Building: T881A		Type: 1		
Survey Area: Not Applicable		Survey Unit: Exterior		Area (m²): 124		
Survey Unit Desc 1983. The size of	Survey Unit Description: This trailer was acquired and installed at this site, northeast of Building 881, in June of 1983. The size of this trailer is approximately 14' X 70'.					
Survey Type:			Classification:			
RLC Survey □ FSS X			Class 1 □ Class 2 □ Class 3 X Unknown □			
Random/Uniform Surface Activity Measurements	Biased Surface Activity Measurements	Equipment Surface Activity Measurements	Media Samples	Volumetric Samples	Surface Activity Scans	
28	0	0	4 2	0	Biased	
Building:	·	Type: Change	e#1 Km 4/1/00	Survey Area:		
Survey Unit:			Area (m²):			
Survey Unit Desc	ription:					
Survey Type:		4444	Classification:			
RLC Survey □ FSS □			Class 1 □ Class 2 □ Class 3 □ Unknown □			
Random/Uniform Surface Activity Measurements	Biased Surface Activity Measurements	Equipment Surface Activity Measurements	Media Samples	Volumetric Samples	Surface Activity Scans	
Building: Type:			Survey Area:			
Building:		Туре:		Survey Area:		
Building: Survey Unit:		Туре:	Area (m²):	Survey Area:		
	ription:	Type:	Area (m²):	Survey Area:		
Survey Unit:	ription:	Type:	Area (m ²): Classification:	Survey Area:	And American Control of the Control	
Survey Unit: Survey Unit Desc	ription:	Type:		Uniconsul Especial Page 3 Aug 1954 555 500 annual de Ang	Jnknown □	
Survey Unit: Survey Unit Desc		Type: Equipment Surface Activity Measurements	Classification:	Uniconsul Especial Page 3 Aug 1954 555 500 annual de Ang	Jnknown □ Surface Activity Scans	
Survey Unit: Survey Unit Description Survey Type: RLC Survey Random/Uniform Surface Activity	FSS Biased Surface Activity	Equipment Surface Activity	Classification: Class 1 □ Class	2 □ Class 3 □ U Volumetric	Surface Activity	
Survey Unit: Survey Unit Description Survey Type: RLC Survey Random/Uniform Surface Activity	FSS Biased Surface Activity	Equipment Surface Activity	Classification: Class 1 □ Class	2 □ Class 3 □ U Volumetric	Surface Activity	
Survey Unit: Survey Unit Description Survey Type: RLC Survey Random/Uniform Surface Activity Measurements	FSS Biased Surface Activity	Equipment Surface Activity Measurements	Classification: Class 1 □ Class	2 □ Class 3 □ U Volumetric Samples	Surface Activity	
Survey Unit: Survey Unit Description Survey Type: RLC Survey Random/Uniform Surface Activity Measurements Building:	FSS Biased Surface Activity Measurements	Equipment Surface Activity Measurements	Classification: Class 1 □ Class Media Samples	2 □ Class 3 □ U Volumetric Samples	Surface Activity	
Survey Unit: Survey Unit Description Survey Type: RLC Survey Random/Uniform Surface Activity Measurements Building: Survey Unit:	FSS Biased Surface Activity Measurements	Equipment Surface Activity Measurements	Classification: Class 1 □ Class Media Samples	2 □ Class 3 □ U Volumetric Samples	Surface Activity	
Survey Unit: Survey Unit Description Survey Type: RLC Survey Random/Uniform Surface Activity Measurements Building: Survey Unit: Survey Unit Description Survey Type: RLC Survey RLC Survey	FSS Biased Surface Activity Measurements	Equipment Surface Activity Measurements	Classification: Class 1 □ Class Media Samples Area (m²):	2 Class 3 U Volumetric Samples Survey Area:	Surface Activity	
Survey Unit: Survey Unit Description Survey Type: RLC Survey Random/Uniform Surface Activity Measurements Building: Survey Unit: Survey Unit Description	FSS Biased Surface Activity Measurements	Equipment Surface Activity Measurements	Classification: Class 1 □ Class Media Samples Area (m²): Classification:	2 Class 3 U Volumetric Samples Survey Area:	Surface Activity Scans	

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SURVEY PACKAGE SURVEY/SAMPLING INSTRUCTIONS FORM

Package ID: 2000-01	Building: T881A
Survey Area: Not Applicable	Survey Unit: Exterior

Survey Unit Description: This trailer was acquired and installed at this site, northeast of Building 881, in June of 1983. The size of this trailer is approximately 14' X 70'.

Minimum Survey/Sampling Measurement Requirements						
Measurement	Number and Type	Comments				
Surface Activity	EXTERIOR WALLS/ROOF:	SEE NOTE 1				
Measurements	28 surveys will be taken per the attached survey map.	SEE NOTE 2				
		SEE NOTE 3				
		SEE NOTE 4				
	QUALITY ASSURANCE SURVEYS	SEE NOTE 5				
		SEE NOTE 6				
	EXTERIOR ROOF/WALLS:					
	5 surveys will be taken per direction from					
	radiological engineering.					
		·				

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SURVEY PACKAGE SURVEY/SAMPLING INSTRUCTIONS FORM (cont)

Package ID: 2000-01Building: T881ASurvey Area: Not ApplicableSurvey Unit: Exterior

Survey Unit Description: This trailer was acquired and installed at this site, northeast of Building 881, in June of 1983. The size of this trailer is approximately 14' X 70'.

Measurement	Number and Type	Comments
Surface Scanning	EXTERIOR WALLS/ROOF:	SEE NOTE 1
	Biased surface scans will be performed on the	SEE NOTE 2
	exterior where contamination would accumulate. This includes seams, cracks and corners. Both	SEE NOTE 3
	the exterior walls and roof will be scanned.	SEE NOTE 4
_	loss	SEE NOTE 5
Change #10 1000 6-20-00	No more than 10% of the total area will be scanned.	SEE NOTE 6
	QUALITY ASSURANCE SCAN SURVEYS	
	EXTERIOR WALLS/ROOF:	·
	5 percent of total number of scans or of total scan area will be taken per direction from radiological engineering.	
	•	
N. 1. C. 1	NONE 2	
Media Samples	Change #7 Epry 4/1/00	
	·	
Volumetric	NONE	
Samples		
Isotopic Gamma Scans	NONE	
- Taily		

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SURVEY PACKAGE SURVEY/SAMPLING INSTRUCTIONS FORM (cont)

Package ID: 2000-01Building: T881ASurvey Area: Not ApplicableSurvey Unit: Exterior

Survey Unit Description: This trailer was acquired and installed at this site, northeast of Building 881, in June of 1983. The size of this trailer is approximately 14' X 70'.

Survey/Sampling Instructions

NOTE 1: Surveys of the area were established on a random basis and are delineated on page 14, RSFORMS-16.01-10, of the survey package. Survey points will be taken in the middle of the survey grid and will be cross-referenced to a common reference point in the trailer. These surveys will be taken in accordance with PRO-476-RSP-16.02, "Radiological Surveys of Surfaces and Structures", for the following:

- Total alpha contamination
- Total beta contamination
- Removable alpha contamination
- Removable beta contamination
- Biased scan measurements for alpha then beta/gamma contamination

For total alpha and total beta surveys, the LAB will be determined at each survey point by placing a piece of plywood over the probe face that is at least 0.5 inch thick and performing an alpha count and a beta count. The material background for both total alpha surveys and total beta surveys will be considered to be 0 dpm/100 cm².

Alpha scanning using the NE Electra for the DP6-BD and DP8A probes will be in accordance with Letter SJR-001-99, "Alpha Scan Rates for Building 779 Cluster Final Status Surveys," and Letter SJR-004-99, "Performance of Scan Surveys with the Bicron/NE DP8 Probe for Building 779 Cluster Final Status Surveys," respectively. Beta scanning using the NE Electra.

NOTE 2: Quality assurance prescribed surveys of the area will be taken in accordance with PRO-476-RSP-16.02, "Radiological Surveys of Surfaces and Structures" per the requirements in PRO-479-RSP-16.05, "Radiological Survey/Sample Quality Control," for the following:

- Direct alpha contamination
- Direct beta contamination
- Scan measurements for alpha then beta/gamma contamination

The location of quality assurance surveys will be delineated by radiological engineering after the initial surveys are performed. Quality assurance surveys will be performed by a different individual than performed the original survey.

NOTE 3: The RCT shall document the results for all surveys performed and maintain with the survey instructions package.

NOTE 4: All survey instruments will be performance checked both prior to and after performing surveys, and both performance checks will be documented. Contact Radiological Engineering for direction if an instrument fails the post performance check.

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SURVEY PACKAGE SURVEY/SAMPLING INSTRUCTIONS FORM (cont)

Package ID: 2000-01Building: T881ASurvey Area: Not ApplicableSurvey Unit: Exterior

Survey Unit Description: This trailer was acquired and installed at this site, northeast of Building 881, in June of 1983. The size of this trailer is approximately 14' X 70'.

Survey/Sampling Instructions

NOTE 5: The following MDA requirements are a goal for each survey instrument. The MDA shall not exceed the Investigation Levels outlined in NOTE 6.

- 10 dpm/100 cm² for removable alpha contamination
- 50 dpm/100 cm² for total alpha contamination
- 500 dpm/100 cm² for removable beta contamination
- 2500 dpm/100 cm² for total beta contamination
- 150 dpm/100 cm² for alpha scan
- 7500 dpm/100 cm² for beta scan

NOTE 6: If a survey result exceeds the following investigation levels, contact radiological engineering before proceeding:

- 15 dpm/100 cm² for removable alpha contamination
- 75 dpm/100 cm² for total alpha contamination
- 750 dpm/100 cm² for removable beta contamination
- 3750 dpm/100 cm² for total beta contamination
- 225 dpm/100 cm² for alpha scan
- 11250 dpm/100 cm² for beta scan

An investigation will be performed into the elevated results.

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·								ŀ	OF ORM PA	S-16.02- GE 9 of			
·			TOTAL	SURFACI	E ACTIV	/ITY SURV	EY DATA	FORM					
Survey A	rea: NOT AP	PLICABI	LE	Survey Un	it: EXT	ERIOR		Build	ing: T881.	Ā			
Survey U of this tra	nit Description iler is approximately	n: This tra	iler was ac X 70'.	equired and	l installed	d at this site,	northeast of	Building 8	81, in June	of 1983. T	he size		
D.4	/ m·					Instrument	Data						
Inst.	/ Time No.: α	·	-			Probe No.:	:						
Inst.	Νο.: β,γ					Probe No.:							
β,γ Effic MDC Probe	iency (%): α C (dpm/100 cm ² e Correction Fac): α ctor: α	βv	(cr βγ	om/dpm)	Mat. Area 3	Bkgd: α e area)		βγ	(dpm/	(100 cm ²)		
Cal. I	Due Date:					Surve	ey Type:	Alpha	Beta	<u>-</u>			
Sample Number	Location / Description		Counts pm)		Bkgd om)	1	Counts pm)		Activity 100 cm ²)	**Net Activity Gross Activity - Mat. Area Bkgd. (dpm/100 cm²)			
		α	β,γ	α	β,γ	α	β,γ	α	β,γ	α	β,γ		
 										<u> </u>			
				-				 			 		
)				-				 	<u> </u>		 		
			·					 		}			
<u></u>							!	 	 	 	<u> </u>		
ļ								 					
		- ·											
										ļ			
											 		
						,					,		

* (Gross Cts - LAB) ÷ (Eff.) × CF = Gross Activity

**Gross Activity - Mat. Bkg = Net Activity

Employee # RCT Signature Employee #

RCT Printed Name Date RCT Technical Supervisor Printed Name RCT Technical Supervisor Signature Date Employee #

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32/242 RO 3-65

		REMOV	ABLE SUI	RFACE ACT	IVITY DATA	A SURVEY	FORM						
<u> </u>	NOT		Y DV	ELDIOD			T10011						
APPLIC			Unit: EXT				ng: T881A						
Survey U of this tra	nit Description: iler is approximate	This trailer ware the strailer was the strail of the strain of the strail of the strai					Building 881	l, in June of 19	983. The size				
				ear Survey I									
Count I	Date / Time: D.: ficiency (%): α			Probe N	o.:								
Inst. Ef	ficiency (%): α		<u> </u> βγ	0 I DIZ	0	0.							
Cal. Du	dpm/100 cm ²): ie Date:	α		<u>βγ</u> Inst. BK Survey	G: α Γype: Alpha	<u> </u>	y Beta-Gamr	<u>(cpm)</u> na					
Removable Survey Data													
C	T4:/				•								
Swipe Number	Location / Description	Comme	nts	Gross C cpn		Net C Cr			e Activity * 100 cm ²)				
				α	βγ	α	βγ	α	βγ				
146													
								-					

	_		* (GROSS	Cts - Inst. Bk	$g) \div (Eff.) = \overline{A}$	ACTIVITY							
RCT Printed N	ame	Employ	ee#		RCT Signature			Date					
RCT Technica	Supervisor Printed Name	Employ	ree#		RCT Technical Su	pervisor Signatur	e	Date					

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	SURF	'ACE SCANN	NING DATA	SHEET	
Survey Area: NOT A	PPLICABLE	Survey Unit: EXT	ERIOR	Building: T881A	
Survey Unit Descripti	on: This trailer wa	as acquired and installe	ed at this site, northe	east of Building 881, in Jui	ne of 1983. The size
of this trailer is approxi	mately 14' X 70'.				
Data / Times		Scan Inst	rument Data		
Date / Time:		Probe No.:			
Cal. Due Date:		Survey Type:	Alpha Beta-	Gamma	
			rvey Data		
Sample	Location	1		Sc	
Number	Descripti	on	Comments	(dpm/10	
				α*	β,γ*
· ·					
	·				
					1010
RCT Printed Name	Emp	loyee #	RCT Signature		Date
ACT TIMES NAME	Emp	noyee #	KC1 Signature		Date
RCT Technical Supervisor Printed 1	Name Emp	loyee #	RCT Technical Supervis	or Signature	Date

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^{*} If an elevated count rate or a sustained audible increase in the count rate is observed during the scan survey, OR the rate meter alarm sounds, THEN: Scan the immediate vicinity to determine the bounds of the elevated activity, and take a "Total Surface Activity" measurement and record. Mark the location of most elevated activity on the surface with a self-adhesive label or equivalent, ensuring that the marking is not applied directly over the point of interest. Further analysis is required by RS Supervision.

SURVEY PACKAGE CALCULATION WORKSHEET

Package ID: 2000-01	Building: T881A	
Survey Area: Not Applicable	Survey Unit: Exterior	WARE CONTROL
Survey Unit Description: This trailer was acquire June of 1983. The size of this trailer is approximately 1		Building 881, in
X Total Surface Activity	☐ Media Surface Activity	and the second s
X Removable Surface Activity	□ Volumetric Surface Activit	y
Step 1: Calculate the relative shift Δ/σ_s . $\Delta/\sigma_s = (DCGL\text{-}LBGR)/\sigma_s$ $\Delta/\sigma_s = 1.0$ where: A value of 1.0 was chosen since no survey data use of 1.0 maximizes the number of surveys rec		1.0 and 3.0. The
Step 2: Determine Sign p using the calculated relative sthat a random measurement from the survey un median is actually at the LBGR. Sign p = 0.84	it will be less than the DCGL _w when the	
Step 3: Determine Decision Error Percentiles for $Z_{1-\alpha}$ a Typical (α) and (β) values used at RFETS are 0 value of 1.645 and 1.645 respectively.		
Step 4: Calculate Number of Data Points (N) for Sign 7	Test using the following equation:	
$N = \frac{(Z_{1-\alpha} + Z_{1-\beta})^2}{4(Sign p - 0.5)^2} = 23.22$		
Step 5: Increase the number of data points by 20% to en possible data losses. 23.22*1.2 = 27.86	nsure sufficient power of the tests and to	allow for
Conclusion:		
A total of 28 data points will be needed to satisfy MARS	SSIM statistical requirements.	
RICK ROBERTS	Marie	1/22/00
Project RE Printed Name	roject RD Signature	Date
H.B. ESTABROOKS		1/21/00
RESS RE Printed Name	ESS RE Signature	Date

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35/242 RC

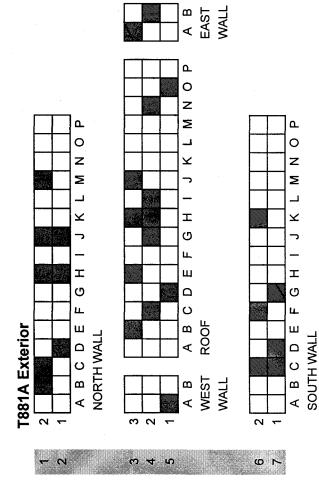
SURVEY PACKAGE SURVEY MAP

Package ID: 2000-01	Building: T881A
Survey Area: Not Applicable	Survey Unit: Exterior
Survey Unit Description: This trailer was acquired at of 1983. The size of this trailer is approximately 14' X 70	nd installed at this site, northeast of Building 881, in June 0'.
Floor Area (m ²): 48	Total Area (m²): 124
SEE ATTACHED SURVEY MAP	

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Survey Unit: Exterior Package ID: 2000-01 **Building: T881A**



X-Coordinate Y-Coordinate		×	>		×	×		××	\forall
10 2	1	Ξ.	3	21 3 11 5	2	3	3 21	8	3
	7	22 4 12	4		ო	7	22	7	4
Total Surface Area = 124 m ²	<u>ر</u>	10 4 13	4		4	7	23	က	_
	য	4	7	14 18		5	24	7	က
10% Scan Surface Area = 13 m ²	5	7	4	12 4 15 11	7	9	25	7	Ŋ
	9	10	-	16	τ-	5	26	10	~
= one square meter	~	9	9	17	9	4	27	13	~
	8	13	3	18	7	7	28	7	~
= direct & swipe	တ	က	9	19 17	17	4			
	10 8	ന	2	2 20 8	00	-			

:01-10 Page 14 of 15 Attachment to RSFORMS

SURVEY PACK SURVEY MAP

Revision 1

Survey Unit: Exterior

Building: T881A

ID:2000-01

Pack

Delete - Supercented by Revision 2 7 U V 1 2 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 > \supset ⊃ ⊢ S ဟ တ œ œ œ Ø Ø ø ۵ Φ 0 0 0 z Z z z Σ Σ ж Г ¥ ш ۵ _ = East Wall ပ _ _ I മ ഗ G თ **T881A Exterior** ш Д Ш LL. ш ш ۵ Ω Δ ۵ South Wall North Wall West Wall ပ ပ O ပ A B മ œ മ Roof က ထ ∕

10% Scan Surface Area = 21.8 m²

= one square meter

= direct & swipe

Total Surface Area ≈ 218 m²

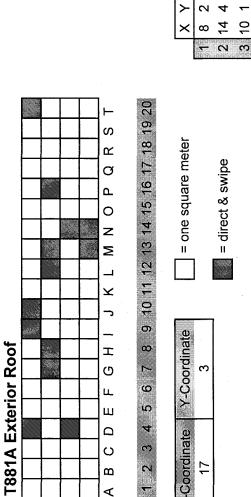
X-Coordinate Y-Coordinate

7

A Property and

3-71

Survey Unit: Exterior Pack_ye ID: 2000-01 **Building: T881A**



Ω O B ⋖

2 3

- 2 € 4

Roof Surveys randomly chosen with original number of survey points (13 survey points)

13 20

X-Coordinate

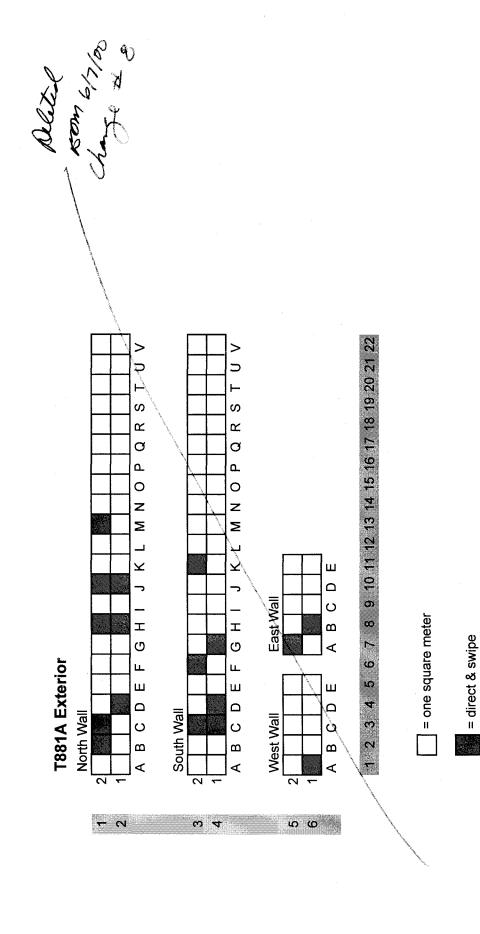
Page 14 of 15 Attachment to RSFORMS-15.01-10

SURVEY PACKAGE SURVEY MAP

Revision 3

Survey Unit: Exterior

Package ID:2000-01 **Building: T881A**



Survey Locations Correspond to original randomly placed locations for the walls No change in the survey locations on the walls was necessary for Revision 1

3/1/30

SURVEY PACKAGE VALIDATION CHECKLIST FORM

Package ID: 2000-01	Building: T881A								
Survey Area: Not Applicable	Survey Unit: Exterior								
Survey Type: Reconnaissance Level Characterization	Survey ☐ Final Status Survey	X							
All Documentation Reviewed for Completion	RCT Supervisor	PRE							
Scan Surveys	A/	RM							
Total Activity Surveys	p.	EM							
Exposure Rate Surveys	N/A	N/A							
Removable Surveys	N	RIM							
Media Samples	95	EBM							
Volumetric Samples	N/A	N/A							
All Surveys and Samples Accounted For	RCT Supervisor	PRE							
Scan Surveys	N	RIM							
Total Activity Surveys	120	EM							
Exposure Rate Surveys	N/A	N/A							
Removable Surveys	N	Earl							
Media Samples		ROM							
Volumetric Samples	N/A	N/A							
Comments:									
Ren Worster		<u>(</u> 19722)							
RICK ROBERTS (2017-03)	RCT Supervisor Signature	Date							
BEIC D. MORANDY	S. W. m June	6-12-00							
Project RE Printed Name	Project RE Signature	Date							
H.B. ESTABROOKS TWIND DECEY	XV Golfste	y 5/3/00							
RESS Manager Printed Name	RESS Manager Signature	Bate /							

08/3/00

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Survey Area:

N/A

Survey Unit: **Building:**

Exterior T881A

Survey Unit Description:

Roof and walls of Trailer T881A

8. **POST-PERFORMANCE ACTIVITIES**

8.1 **Documentation**

Reviewed the above mentioned Survey Package and associated measurement data in accordance with PRO-478RSP-16.04, Radiological Survey/Sample Data Analysis. The following items are noted:

- 1. Various notes are provided on the Survey Package DQA Checklist. See DQA Checklist.
- 2. Various notes are provided within the Survey Package. See Survey Package.
- 3. DQA Checklist should have location to input Survey Area, Survey Unit, Building and Survey Unit Description to ensure improved tracking.
- 4. Section 7.2.2 Accuracy, of RSP-16.04 should be rewritten to provide usable accuracy analysis process. Interoffice Memorandum REVISION TO PRO-478-RSP-16.04, RADIOLOGICAL SURVEY/SAMPLE DATA ANALYSIS - EDM-001-00 was written and concurred on to provide a usable accuracy analysis process.
- 5. Spreadsheets provided to perform statistical calculations.
- 6. Several forms have been generated to replace forms from RSP-16.02. RSP-16.02 should be revised to reflect this change/improvement.
- 7. Total number of data points is very conservative. Using MARSSIM guidance it can be shown that significantly less data points are statistically acceptable. See spreadsheets.
- 8. Survey maps need improvement. Methodology employed is one that was used prior to RSP-16.01 approval. Recommend scale maps with grid overlays or CAD drawing in the future. See B779 Closure Project maps as examples.
- 9. See data sheet(s) for corrected data.
- 10. TSA/RA measurements for walls taken based on original map, TSA/RA measurements for roof taken based on revision 2 of map (revision 1 not used). This resulted in two additional measurements because of difference in random numbers generated.

Prepared by: 2. 0. 77 | 5-31-00

PRO-478-RSP-16.04 REVISION 0 PAGE 22

(09/30/99)

APPENDIX A

Page 1 of 1

DQA Checklist

		Performed By	Comments
§	Item	(Initials/Date)	(number & attach)
7.1	Data Verification	129m /5/31/00	
7.1[1]	DQOs implemented as prescribed	EM / 5/31/00	
7.1[2]	All required supporting documents present	15/31/00	
7.1[3]	Outliers / anomalies addressed	EDM /5/31/00	
7.2	Data Validation	100my / 5/31/00	
7.2.1	Survey/Sample Precision	Egy /5/31/00	
7.2.2	Survey Accuracy	15/31/00	see spreadsheets
	Sample Accuracy	EDM /5/31/00	
7.2.3	Data Representative of survey unit	KOM /5/31/00	Aul
7.2.4	Survey/Sample/Scan Completeness	EDM /5/31/00	Ges Group B 100%
7.2.5	Data Comparable to related units	EDM /5/31/00	yes Group B
7.3	DQA complete	EM /5/31/00	see sprendsheets
7.3[3]	Any measurement > DCGL _w ?	xxx /5/31/00	no
7.3[4]	Mean > DCGL _w	N/A	N/A
7.3.[5]	Any measurement > maximum DCGL	N/A	N/A
7.4	Evaluation	N/A	N/A
7.4[1]{D]	New survey package (if req'd)	N/A	N/A
7.4[1][E]	Radiological improvement report (if req'd)	N/A	N/A
7.4[2]	Verify documentation complete	N/A	N/A
8.0	Peer review	de 6/13/00	NONE
	Package submitted to project management	EXEM (E-3-22)	
9.1	Records to Records Center (copy to project files)	EM 8-22-00	

NOTE: The DQA Flow Chart (Appendix B) is provided as aid to illustrate the DQA process when performing survey/sample data analysis activities describe in this procedure.



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(dpm/100 cm²) Alpha Removable Activity

a - N/A	Survey Unit - Exterior	F881A	Survey Unit Description - Roof and walls of ·	Removable Contamination Data Sheet	$20 \text{ dpm/}100 \text{ cm}^2$	30	$0.7 \mathrm{dpm/100cm^2}$	$1.4 \text{ dpm/}100 \text{ cm}^2$		No measurement exceeds the DCGL _w		2 additional measurements taken																	
Survey Area - N/A	Survey Uni	Building - T881A	Survey Uni	Removable	DCGLw	E	Mean	Std Dev		No measur		2 additiona																	
2.42	0.91	-0.91	0.91	0.61	0.91	0.91	-0.91	-0.91	-0.61	2.42	0.91	0.91	0.61	0.61	3.94	-0.91	3.9	3.9	9.0-	6.0	9.0-	6.0	6.0	6.0	9.0-	6.0	9.0-	9.0-	9.0-

Trailer T881A

Removable Activity (dpm/100 cm²) Beta -63.2

Survey Area - N/A

Total Surface Activity (dpm/100 cm²) Alpha 10.6 3.2 35.6

	Survey Area - N/A	Survey Unit - Exterior	Building - T881A	Survey Unit Description - Roof and walls of Trailer T881A	Total Surface Activity Data Sheet	DCGL _w 100 dpm/100 cm ²		Mean 30.6 dpm/100 cm ²	Std Dev 22.7 dpm/100 cm ²		No measurement exceeds the DCGL _W	One measurement exceeds 75% of the the DCGL _w		Precision		Location C_1 C_2 C_1 - C_2 $(C_1$ + $C_2)/2$ RPD		H-1N 28.7 13.2 15.5 20.95 73.98568	J-1N 18.1 23.0 -4.9 20.55 -23.84428	A-1W 17.6 -6.4 24 5.6 428.5714	C-1S 6.9 6.4 0.5 6.65 7.518797		Precision (RPD) is out of specification due to low value survey	measurements		Recalculated N		$\Delta/\sigma_{\rm s} = ({ m DCGL-LBGR})/\sigma_{\rm s}$	$\Delta/\sigma_{\rm s} = (100-50)/22.7$	$\Delta/\sigma_{\rm s} = 2.20$ (default to 2.0)	Sign p = 0.977250	N = 11.88	11.88*1.2 = 14.26 N = 45	Ω!N
piii ioo ciii / Aipiia	10.6	3.2	35.6	21.3	28.7	31.9	18.1	0.0	42.6	17.6	10.6	6.9	17.6	-7.4	6.9	28.7	13.8	35.7	84.6	32.3	58.7	58.7	42.5	58.7	39.1	48.9	55.2	3.4	45.9	68.4				

Total Surface Activity (dpm/100 cm²) Beta -173 -219 -20

				Survey Unit Description - Roof and walls of Trailer T881A							3Lw	the the DCGL _w				C_1 - C_2 $(C_1$ + C_2)/2 RPD	1112 -589 -188.7946	-110 12 -916.6667	-38 75 -50.66667	-353 116.5 -303.0043	225 -99.5 -226.1307		Precision (RPD) is out of specification due to low value survey										
		ŗ		tion - Roof and	Total Surface Activity Data Sheet	5000 dpm/100 cm ²		82.7 dpm/100 cm ²	211.6 dpm/100 cm ²	•	No measurement exceeds the $DCGL_W$	No measurement exceeds 75% of the the				ပ်	-1145	29	94	293	-212		t of specificatio					$^{\prime}\sigma_{ m s}$	1.6	03)			
	- N/A	- Exteric	881A	Descript	e Activit	2000	30	82.7	211.6		ment ex	ment ex				ပ်	-33	-43	26	09-	13		PD) is our	ıts		Z D		L-LBGR)/	-2500)/21	(default t	98650	, c	13.05
	Survey Area - N/A	Survey Unit - Exterior	Building - T881A	Survey Unit	Total Surfac	DCGLw	=	Mean	Std Dev		No measure	No measure		Precision		Location	D-1N	H-1	J-1N	A-1W	C-1S		Precision (RI	measurements		Recalculated N		$\Delta/\sigma_{\rm s} = ({\rm DCGL\text{-}LBGR})/\sigma_{\rm s}$	$\Delta/\sigma_{\rm s} = (5000-2500)/211.6$	$\Delta/\sigma_{\rm s} = 11.81$ (default to 3)	Sign p = 0.998650	N = 10.88	10.88**1.2 = 13.05 N = 14
Thursday Jesus	-1/3	-219	-20	-33	-43	-153	56	-37	63	09-	-173	12	23	-13	-159	-20	80	330.0	292.9	13.5	202.0	444.4	707.1	42.8	26.4	217.4	233.9	112.0	296.4	431.5			

Survey Area: NA Survey Unit: FXTERIOR Building: 7-881 A

Survey Unit Description

EXTERIOR

SURVEY SIGNATURE SHEET

Removable /Total Surface Activity Performed By

P. CHITTUM	P. Sotto	2-22-00
RCT Printed Name	RCT Signature	Date
M. LAWSON	Moderno	2-22-00
RCT Printed Name	RCT Signature	Date
R KELLEY	ill-	2: 62-00
RCT Printed Name	RCT Signature	Date
RCT Printed Name	P. Chutter	2-28-00
NOT Fillited Name	RCT Signature	Date
M, LAWSON' RCT Printed Name	A Champ	-12-22-20
RCT Printed Name	RCT Signature	Date
P. CHITTUM	S. Chill	3-3-00
RCT Printed Name	RCT Signature	Date
RCT Printed Name	RCT Signature	Date

Quality Control Measurements Performed By

2. chittum		P. Chattle	3-3-00
RCT Printed Name		RCT Signature	Date
MARK LAWSON		110/1000	3.300
RCT Printed Name		RCT Signature	Date
RCT Printed Name		RCT Signature	Date
RCT Printed Name	and the state of t	RCT Signature	Date
· · · · · · · · · · · · · · · · · · ·			
RCT Printed Name		RCT Signature	Date

Survey Reviewed By

	J 6/1/1	
Row Marsher		2/4/00
RCT Foreman Printed Name	RCT Foreman Signature	Date

Survey Area: NA Survey Unit: External Building: T SSIAT

Survey Unit Description

External Waters

INSTRUMENT DATA SHEET

Removable Contamination Survey Instrument Data

Manufacturer	FBERLINE	EBERLINE	EBERLINE	EBERLINE	EBERLINE	FBERLINE
Model	SACZU	54-4	13 0~41	BC-4	5AC-4	BC - 4
Inst. ID #	1	2	3	4	5	6
Serial #	1170	1171	9 Z Š	848	1171	961
Cal. Due Date	6-30.00	7.11.00	3-27-03	7.12:00	7-11-00	6-27-00
Analysis Date	2.27.00	2.22.00	2.27.00	2.77.00	2-28-00	2-28-00
Instrument Bkg cm 10-min count time	0, 2	Ø, 3	40.8	35.6	0.2 cpm	42. Yepm
Instrument Eff (%)	33	3 3	25	z ヾ	33.0	25
Instrument MDA 2-min count time	7.6 8. 1 123 200	8.3	70.5	69.6	7.6	71.8

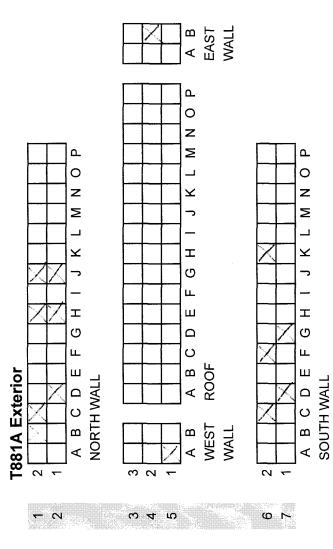
Total Surface Activity Instrument Data

ufactur	er	N.E.	Tech.	N.E.	Tech.	N.E.	Tech.	NE			r E	<i>^</i> √	E
Model		Ele	ctra	Ele	ectra	Ele	ectra	ELEC	TRA	EL	ECTRA	ELE	CTRA
Inst. ID#		7	7		8		9	1	0	1	1	1	2
Serial # / Pi	robe #	2379	1924	2378	1956	1549	1354	2376	1921	2378	1956	2376	1921
Cal. Due Da	ate	8-9	-00	. 5-	3-00	61e	4/00	8-2	3-00	5-3	-00	8-2	3-00
Survey Date		i —	2-00	2-2-	2-00	2 - 1	4-00	2-2	28-00	2-2	8-00	3 - 3	-00
Alpha Bkg 90-sec Cpm count time	Beta Bkg 90-sec <i>opm</i> count time	4.7	649	4.0	645	2.7	384	7.0	458	2.7	484	1. 3	613
Alpha Eff (%)	Beta Eff (%)	21.54	30.65	22.35	30.36	18.8	30. jt	20-46	29.10	22. 35	30-36	20.46	29.7
Alpha MDA 90-sec productions count time	Beta MDA 90-sec	46.6 560000	321.7	42.1	323.7	42.8	253.9	35. i	279.8	36.0	281.2	30.0	322-8

Page $\frac{\mathcal{L}}{}$ of $\frac{18}{}$

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Package ID: 2000-01 Building: T881A Survey Unit: Exterior Scan Lecetions



3 of 12

Survey Area:	Survey Unit:	Building:
Survey Unit Description:	EXTERIOR	881 A
EXTER	RIOR WALLS CO.	
RCT Initials/Date: PC 2-22-00	/2 - 4 4 4	RCT Initials/Date: NH
	Investigation Survey Form for instrumentation,	
Legend: "R"-Roof, "W"-	West Wall, "S" - South Wall, "E" - Eas "C" - Ceiling, "F" - Floor	t Wall, "N" – North Wall
	X	
1		
		U
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, 0		
10-15	\mathcal{D}	-/N
	:	
K	*	
		0
\bigcirc \bigcirc \bigcirc \bigcirc		2/22(00
(3)		
·		
A-1W	.	5-ZE
·		
* Designates corner closest to A.1 nois	nt of majoranae	

Results/Comments

Electra alpha scans were performed at the locations detailed on the survey map(s). All required accessible areas were scanned. All initial scan results were <225 dpm/100cm², unless noted on the survey form.

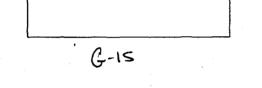
Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the survey form.

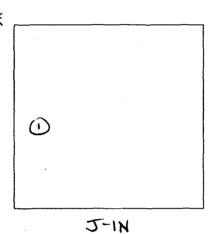
3-84

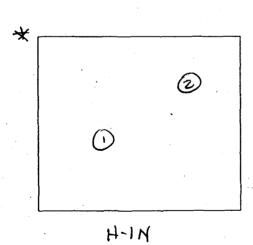
Page 4 of 18

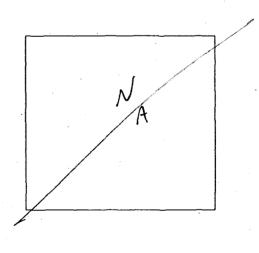
Rev. 020900

Survey Area:	Survey Unit:	Building:
NA	EXTERIOR	T381A
Survey Unit Description:		
	EXTERIOR WALLS	
RCT Initials/Date: PC 2-22	RCT Initials/Date: NA	RCT Initials/Date: NA
Refer to the Final Survey NE Electra S	Scan & Investigation Survey Form for instrume	ntation, surveyor & approval information.
T 1 ((7)40 7) 4 ((1)	W" - West Wall, "S" - South Wall, "E	" – East Wall, "N" – North Wall
Legend: "R"- Roof, "	"C" -Ceiling, "F" - Floor	
Legend: "R"- Roof, "	· · · · · · · · · · · · · · · · · · ·	
Legend: "R"- Roof, "	· · · · · · · · · · · · · · · · · · ·	
Legend: "R"- Roof, "	· · · · · · · · · · · · · · · · · · ·	









* Designates corner closest to A-1 point of reference

Results/Comments:

Electra alpha scans were performed at the locations detailed on the survey map(s). All required accessible areas were scanned. All initial scan results were <225 dpm/100cm², unless noted on the survey form.

Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the survey form.

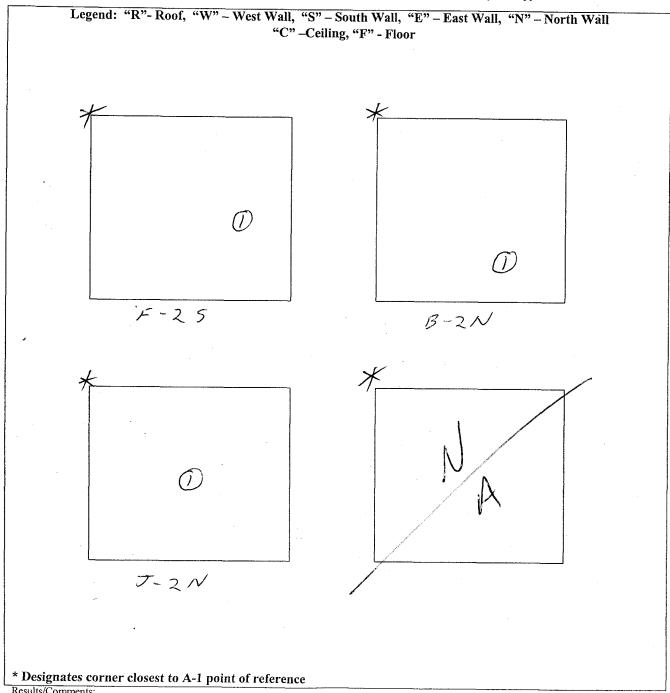
)

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 $_{\text{Page}} = \frac{5}{6} \cdot \frac{18}{100}$

Survey Area:	Survey Unit:	Building:
Survey Hait D	EXTERIOF	T881 A
Survey Unit Description:	EXTERIOR WALL	
	EXTERIOR WALL	5
RCT Initials/Date:	3-3-00 RCT Initials/Date:	VIX RCT Initials/Date: NK

Refer to the Final Survey NE Electra Scan & Investigation Survey Form for instrumentation, surveyor & approval information.



Electra alpha scans were performed at the locations detailed on the survey map(s). All required accessible areas were scanned. All initial scan results were <225 dpm/100cm², unless noted on the survey form.

Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the survey form.

Survey Area:	Survey Unit:	Building:
	EXTERIOR	T 881A
Survey Unit Description:		
	ROOF.	1
RCT Initials/Date: PC 3-3-00	RCT Initials/Date:	RCT Initials/Date:

Refer to the Final Survey NE Electra Scan & Investigation Survey Form for instrumentation, surveyor & approval information.

Legend: "R"- Roof, "W" - West Wall, "S" - South Wall, "E" - East Wall, "N" - North Wall "C" -Ceiling, "F" - Floor 9 POINT (NUESTIGATION D-4R * Designates corner closest to A-1 point of reference

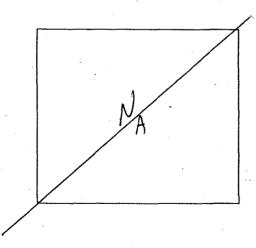
Results/Comments:

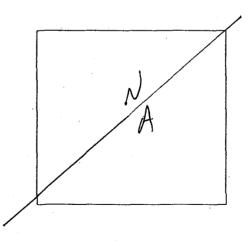
Electra alpha scans were performed at the locations detailed on the survey map(s). All required accessible areas were scanned. All initial scan results were <225 dpm/100cm², unless noted on the survey form.

Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the survey form.

Final Survey NE Electra

	Sc	an & Investiga	tion Survey	Map
Survey Area:	NIA	Survey Unit:	TEPIOR	Building: T881A
Survey Unit Desc	ription: $Q.C.$	CHECKS		
RCT Initials/Date	: hg. 2.2.0	RCT Initials/Date:	NA	RCT Initials/Date: NIA
Refer to the Final S	urvey NE Electra Scan &	Investigation Survey For	rm for instrumentati	on, surveyor & approval information.
Legend	l: "R"- Roof, "W"-	West Wall, "S" – So "C" –Ceiling,		East Wall, "N" – North Wall
		•		
*_			<u></u>	
				NA
				/ PT
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	' B-ZE			





* Designates corner closest to A-1 point of reference

Results/Comments:

Electra alpha scans were performed at the locations detailed on the survey map(s). All required accessible areas were scanned. All initial scan results were <225 dpm/100cm², unless noted on the survey form.

Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the survey form.

Rev. 020900

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Survey	Area:	~//	Λ.	Survey U				Building:		
Survey	Unit Des	scription:	/ 		とメノ	ERIO	12	/ 8	81 A	
	F	EI	ectra DP-6 Be	ALLS	1					
Loc.	RCT	Inst.	Elevated	60-sec PAT	RCT	Inst.	4-sec Audible	DP-6 Alpha e 30-sec Static 90-sec 1		
ID#	ID#	ID#	Audible observed? "Y" or "N"	(dpm/100cm2)	ID#	ID#	observed? "Y" or "N"	(gcpm)	(dpm/100cm ²)	
A-1W1		7	N	NA	-	8	Y	10	NA	
A-1W2		7				8	Y	10		
A-1w3		7				8	У	10		
8-281		7				8	Y	6		
10-151		7				7	Y	24		
6-151		7				8	Y	10		
6-152		7				8	Y	8		
D-1N1		7				7	Y	22		
5-121		7				8	Y	4		
H-11V1		フ.				8	Y	12		
H-1N2		7	N	NA		8	Y	10	NA.	
C-25		12	~	NA		12	A A TO	NA	NA	
F-251		12				12	Y	6		
K-25		12				12	~	NA	.	
B-2N1		12				12	y	4		
C-2N		12				12	~	NA		
H-2N		12				13	\sim	NA		
J-2N1		12	<i>J</i> V	NA		12	ľ	2	NA	
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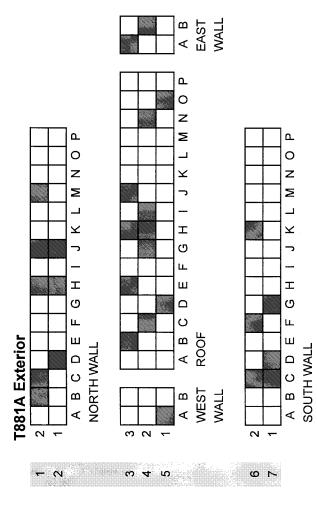
Survey			<i>((</i>)	Survey Ur	nit:		100	Building:	2011		
Survey	Unit Des	cription:	<i>/</i> /	L		121	10R		881A		
				ROO	OF		INVESTI	TIGATION SCAN			
Loc.		El	ectra DP-6 Be					P-6 Alpha			
ID#	RCT ID#	Inst. ID#	Elevated Audible observed? "Y" or "N"	60-sec PAT (dpm/100cm2)	RCT ID#	Inst. ID#	4-sec Audible observed? "Y" or "N"	30-sec Static (gcpm)	90-sec PAT (dpm/100cm ²)		
D-4RI						12			11.3		
0-482				/_		12			8.7		
D-4R3						12		/	13.3		
0-484			N			12	1	4/	10.0		
0-415			//			12	/	A	11.37		
D-4R6		/	1			12			13.3		
D-4R7						12			13.3		
D-4R8						12	/		28.7		
0-489						12			28.01		
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Page 10 of 18

Survey	Area:	. ul	——— А	Survey Ur	EXTERIOR T881A					
Survey	Unit Des	scription:	Q.C.	CITEXES						
Too		Ele	ectra DP-6 Be	eta			Electra D	P-6 Alpha		
Loc. ID#	RCT ID#	Inst. ID#	Elevated Audible observed? "Y" or "N"	60-sec PAT (dpm/100cm2)	RCT ID#	Inst. ID#	4-sec Audible observed? "Y" or "N"	30-sec Static (gcpm)	90-sec PAT (dpm/100cm ²)	
A-IW		12	Ŋ	N		12	N	NIA	N	
B-261		12	N	A		12	Y	2	A	
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Packinge ID: 2000-01 Building: T881A Survey Unit: Exterior



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Y-Coordinate

X-Coordinate

0	Total Surface Area = 124 m ²	10% Scan Surface Area = 13 m^2	= one square meter	= direct & swipe
---	---	--	--------------------	------------------

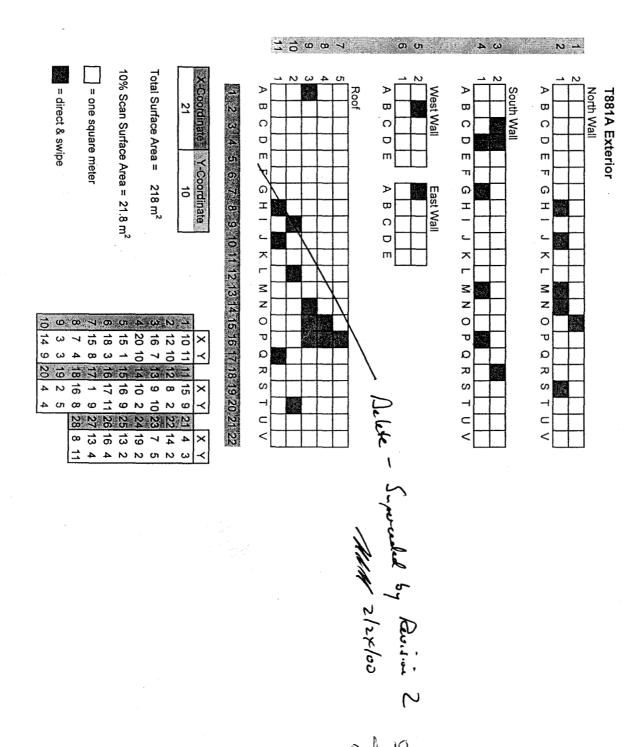
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SURVEY PACK SURVEY MAP

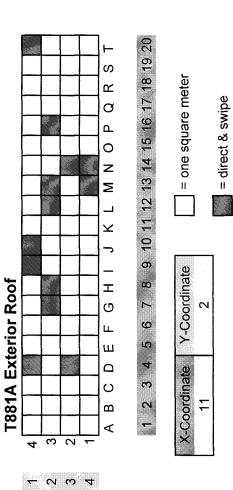
Survey Unit: Exterior Building: T881A Packby ID:2000-01

Revision 1

Attachment to RSFORMS- 20.01-10 Page 14 of 15



Package ID: 2000-01 Building: T881A Survey Unit: Exterior



Roof Surveys randomly chosen with original number of survey points (13 survey points)

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	F	12	13							
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Survey Area: Survey	u I Inite		
Survey Unit Description	y Unit:	Building:	7 88/ A
EXTERIOR WALL		and the same of th	

·				Total	Surf	ace	Activ	vity	Data	She	et		
Sample location	RCT ID#		st ID#		count time (sec)	1	LAB (cpm)		ss Count (gcpm)		t counts (cpm)	Net	Activity
		α	β	α	β	α	β	α	β	α	β	α	/100cm2) β
13-2E		9	9	90	90	2.7	441	1/4 3	389	2.0	-52		-
B-2N		1	9	90	90	7.7	477	5. 9			1-66	1000	+=/=
C-2 N		9	7	90	90	1.3	393		387		-6	3-3	13.79
0.11		9	9	90	90	7.3	1 4 2 3		323			35.6	3.0
4-11	-	9	9	90	90	7 - 3	706		377	1	1-10	2,1.3	-33
4-2 ~		9	9	90	90	7 - 3	415	7 3	1	5.4	1.73	128 7	4 9
J-1~		9	9	90	90	7.3	194	.~	317	6.0	- 46	31.9	- 15 3
7-2~		Cĝ.	9	90	90	2.7	7/12	2.2	971	3 7	177	18.1	56
1-21		63	9	90	90	1.3	389	1/3	401	6.0	1-1/	Care	- 37
9-12		9	4	90	90	2. 0	374	1	128	<u>+8 €</u>	19	42.6	43
-23.		9	9.	90	90	2-7	397	35.3	256	3 3	- 18	17.6	- 20
-15		4	9	90	90	4.0			175	2.0	- 52	10.6	-173
7-15		9	9	90	90		707	£ 3	1 ×//	1.3	4	6.9	7.3
-25		a	4	90	90	<u>0.7</u>	379	1 1 1	7.8%	3.3	7	17.6	23
- 15		9	9.	90	90	27	406	4.3	70.2	- 1,4	4	7. 4	-/3
म्क असी । रे		G	9	90	90	2 . O	3.99	3. 3	755	1.3	- 48	6.9	277
-3E.		9	4	90	90	<i>J</i> -3	94.5	4.7	322	3. 9	- E	25.7	- +5%
				90	90	2.7	387	5 3	my 11	2.↓	24	13.5	77.3
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<u>~QC</u>		12	12	90	90	2.63	45141	2 7	732	17.7	28		67
		12	12	90	90	4.0		2 -	543	-1.3	87	23.0	94
<u>√</u> QC <u>Not</u>		12	12	90.	90 ected by a	3.9	423	_,	2 35	7.3	-63	64	293

Not leasurements are to be collected by a different technician than the original survey. Mark the QC location number in the "Sample Location" column. Material background is assumed to be zero unless otherwise noted. "LAB" ~ local area background.

Page 5 of 8



Survey Area:	Survey Uni	t: Expense	Building:	7 8814	
Survey Unit Descriptio					
EXTERIOR	505 4	EL. 2	m -13?		

	· ·		Ť	otal	Surfa	ace A	ctiv	ity D	ata	Shee	t		
Sample location	RCT ID#	Ins	t ID#		ount time		AB pm)		Count		ounts		ctivity 00cm2)
		α	β	α	β	α	β	α	β	α	β	α	β
D-25		10	10	90	90	0.7	359	8.0	487	5 3	78	3 mg 27	332
D.4R		10	10	90	90	2 - 7	367	200	<i>\$</i> 7.53	17-3	\$2	X4 L	292.7
6-3K		10	16.	90	90	2.7	34 K 34	9.3	509	6-6	4	32.3	235
11-3 R		10	10	90	90	4.3	387	13.3	1/47	72.6	60	58 7	202
I-4R		10	16	90	90	2.0	357	14.0	436	12.0	132	5 8. 7	444.4
J-48		10	10	90	90	5.7	365	14.0	575	8-7	2.70	-12.5	707.1
2-3R		10	11	90	90	2 . 3 .	759	14.0	922	12.0	13	58.7	928
misk		10	11	90	90	20	472	16.0	490	8.0	8	19.7	26.7
pn-3R		10	11	90	90	2.0	441	12.0	50.7	1100-0	66	44.7	2:71
N-IR		10	11	90	90	4.7	379	14.5	750	11.3	7/ .	55.2	233 9
N-28		10	17.	90	90	<u> </u>	709	6.3	4-3	O. 7	3 7	3 4	112.0
P. 3K		10	11	90	90	~; 3	372.0	12.7	510	9.4	72	75 9	296.7
7-482		10	11	90	90	2.7	354	:6.7	515	14	131	4.8.9	431.5
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Survey Area:		Sui	rvey Unit	5473840	Building:		
Survey Unit Des	scription						
EX TE	RICK W	M135	5,08007	180497603	CEORDIN M3	B. E. S. W. J. T. Pople	1249 5 File 3.15.

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-2 /N -2 /N -1 /N -2 /N -1 /N -2 /N -1		2 / 2 / / 2	3 4 3 4 3 3	0.3 0.0 0.5	42 36 49	2 3 2 2 3	1.3		
-2 N -1 S -1 S		2 / 2 / / 2	3 4 3 3	0. 6 5.3 0.3	3.6 49	-53		C-91	
-1 N -1 N -1 N -1 N -1 N -1 N -1 W -1 S -1 S -1 S		/ 2 / /	3 1/ 3 3	6.3 0.3	7.9				4.3
-1N 1 N 2 N 2 N -1W 2 5 -15 -15		/ / 2	3	0.5			-3-6	-0.91	- 1 4. 4
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1 N 2 N 2 N -1 W 2 5 -1 5 -1 5		7	3	20.5		3-12	3 7	10.61	12.2
2 N 2 N -1W 2 5 -15 -15 -25		2			<u> </u>	5 3	-4.8	2.91	-19.2
2 /V -/ W 2 5 -/ 5 -/ 5 -2 5			LJ	0:5	3.5		-5.8	es 91	-23-2
-1w 25 -15 -15 -25	-	-2		0.6	3.7	- 2.3	- 2 - 6	-0.91	-16 4
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-25		1	3	0.5	75	C - 3	4/- 3	0.91	16.8
		/	3	0.5	3.2	€ 3	-8.2	1.91	= 35.3
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- 25	_		3	1.5	46	1. 3	6.8	3.94	-3.2
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Survey Area: NA	Survey Unit: EXTERIOR Building: 7 881 A
Survey Unit Description	
_	EXTERIOR ROOF SAMPLE LOCATIONS
	COORDINATE WITH FIRST MAP. (ROLL)

			P	amovah	la Conta	minatio	on Data S	Shoot	
Sample ocation	RCT ID#		t ID #		Counts pm)		Counts pm)		/able Activity m/100cm2)
		α	β	α	β	α	- 13.9 ferre	α	β ,μυ
7-2R		5	6	1.5	40.5	1.3	-5' fland	3.9	-976-7.
1-4R		5	6	1.5	34.5	1.3	- 7.9	3.9	- 31.6
-3R		<u>5</u>	6	0.0	47.5	-0.2	5.1	-0.6	20-4
1-3R		5	6	0.5	71.5	<i>v</i> .3	-0.9	0.9	- 3.6
-4R		5	6	0.0	41.0	-0.2	-1.4	-0.6	-5,6
- 3R		5	6	0.5	41,0	0.3	-1.7	0.9	- 5.6
1-1R		5	6	0.5	42.0	0.3	-0.4	0.9	-1,6
1-3R		5	6	0.5	42.5	0.3	0.1	0.9	0.4
1-1R		5	6	0.0	44.0	-0.2	1.6	-0.6	6.4
1-2R		5	6	0.5	36.5	0.3	-5.9	0.9	-23.6
-3R		5	6	0.0	37.5	-0.2	-4.9	-0.6	-19.6
~4R		5	6	0.0	32.0	-0.2	-10.4	-0.6	-41.6
-4R		5	6	0.0	35,0	-0.2	-7.4	-0.6	- 29, 6
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Page <u>18</u> of 8

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Survey Area: Art S	urvey Unit: Anterior Building: Transfer
Survey Unit Description	Sant Sant Sant Sant Sant Sant Sant Sant

SURVEY SIGNATURE SHEET

Removable /Total Surface Activity Performed By

M. LAWSON		water	3-28-00
RCT Printed Name		RCT Signature	Date
A PARKELL		ATTE James	3-28-00
RCT Printed Name		RCT Signature	Date
	· ·		
RCT Printed Name	Employee #	RCT Signature	Date
	-		
RCT Printed Name	Employee #	ReT Signature	Date
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RCT Printed Name	Employee #	RCT Signature	Date ·
	\mathcal{A}		
RCT Printed Name	Employee #	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date

Quality Control Measurements Performed By

ROT Printed Name	Employee #	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date
	N		
RCT Printed Name	Employee#	RCT Signature	Date
		1	
RCT Printed Name	Employee #	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date

Survey Reviewed By

SCERNATT	leners	3-29-00
RCT Foreman Printed Name	RCT Foreman Signature	Date

Survey Area: NA	Survey Unit:	Exterior	Building: T881A	····
Survey Unit Descript	tion			
	Roof Sample Locat	ion		

INSTRUMENT DATA SHEET

Removable Contamination Survey Instrument Data

Manufacturer	EBERLINE	EBERLINE	EBERLINE	EBERLINE		
Model	SAC4	BC4	SAC4	BC4		
Inst. ID #	1	2	3	4	5	
Serial #	823	966	1171	868		
Cal. Due Date	9/6/00	9/15/00	7/11/00	7/12/00		
Analysis Date	3/28/00	3/28/00	3/28/00	3/28/00	V	<i>X</i>
Instrument Bkg Am 10-min count time	0.5	42.9	0.3	35.2		
Instrument Eff (%)	33	25	33	25		
Instrument MDA 🍿 2-min count time	9.6	72.2	8.3	65.9	#DIV/0!	#DIV/0!

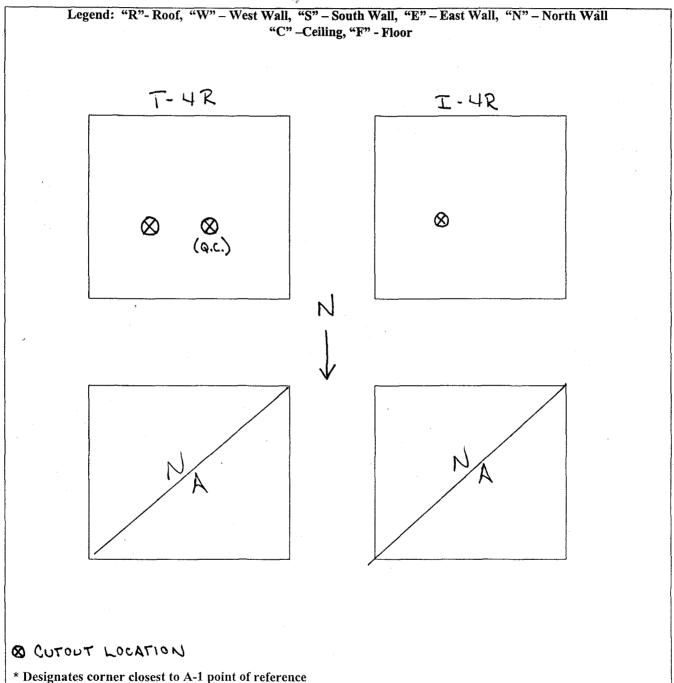
Total Surface Activity Instrument Data

													Martin Marketon
Manufact	urer	N.E.	rech.	N.E.	Tech.	N.E.	Гесh.	N.E.	Tech.				
Model		Elec	ctra	Elec	ctra	Elec	ctra	Ele	ctra			part of the same o	
Inst. ID #			7	8	3		9	1	0	1	1/	1	2
Serial # / I	Probe #	2374	1919	2376	1921					a de la companya de			
Cal. Due D	ate	9/8	/00	8/23	3/00					and the same of th			
Survey Da	ite	3/28	3/00	3/28	3/00								
	Beta Bkg 90 sec count time 4m	4.7	406	3.3	407			der det volge der der de		John St.			
Alpha Eff (%)		20.85	29.89	20.46	29.7			and the second					
Alpha MDA 90-sec dpm count time		48.2	262	42.6	264	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

Final Survey NE Electra Scan & Investigation Survey Map

Survey Area:		Survey Unit:	EXTERIOR	Building: T881	A
Survey Unit Description:	200+	Sample	LOCATIONS		
RCT Initials/Date:	3/28/00 R	CT Initials/Dat	e: NA	RCT Initials/Date:	NA

Refer to the Final Survey NE Electra Scan & Investigation Survey Form for instrumentation, surveyor & approval information.



Results/Comments:

Electra alpha scans were performed at the locations detailed on the survey map(s). All required accessible areas were scanned. All initial scan results were <225 dpm/100cm², unless noted on the survey form.

Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the survey form.

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Survey Area: NA	Survey Unit:	EXTERIOR	Building: T881A	
Survey Unit Description		_		
	ROOF SAMPLE LOCA	TIONS		

			_	al Su									
Sample location	RCT ID	inst	ID#	1 -	ount time ec)	Gross (gc)	Count om)		AB om)		ounts om)		ctivity 00cm2)
		α	β	α	β	α	β	α	β	α	β	α	β
PRE				90	90					0.0	0	0.0	0_
T-4R		7	7	90	90	10.0	433	4.7	406	5.3	27	25.4	90
POST				90	90					0.0	0	0.0	0
T-4R		7	7	90	90	18.7	474	4.0	482	14.7	-8	70.5	-27
PRE				90	90					0.0	0	0.0	0
T-4RQC		8	8	90	90	19.3	492	4.0	473	15.3	19	74.8	64
POST				90	90					0.0	0	0.0	0
T-4RQC		8	8	90	90	26.0	529	6.0	492	20.0	37	97.8	125
PRE				90	90					0.0	0	0.0	0
I-4R		7	7	90	90	18.0	499	2.7	473	15.3	26	73.4	87
POST				90	90					0.0	0	0.0	0
I-4R		7	7	90	90	20.7	499	4.0	445	16.7	54	80.1	181
				90	90_					0.0	0	0.0	0_
				90	90					0.0	0	0.0	0
				90	90					0.0	0	9.0	0_
				90	90					0.0	0 /	0.0	0
				90	90					0.0	0	0.0	0
				90	90					9.0	0	0.0	0
				90	90					0.0	0	0.0	0
				90	90					0.0	0	0.0	0
				90	90					0.0	0	0.0	0
				90	90					0.0	0	0.0	0
				90	90			H		0.0	0	0.0	0
				90	90				-	0.0	0	0.0	0
				90	90					0.0	0	0.0	0
		_		90	90					0.0	0	0.0	0
				90	90					0.0	0	0.0	0
				90	90					0.0	0	0.0	0
QC				90	90					0.0	0	0.0	0
QC				90	90					0.0	0	0.0	0
QC				90	90					0.0	0	0.0	0
æć				90	90					0.0	0	0.0	0
QC				90	90					0.0	0	0.0	0

Note: QC measurements are to be collected by a different technician than the original survey. Mark the QC location number in the "Sample Location" column. Material background is assumed to be zero unless otherwise noted. "LAB" ~ local area background.

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Survey Area: NA Survey Unit: EXTERIOR Building: T881A
Survey Unit Description ROOF SAMPLE LOCATIONS

Removable Contamination Data Sheet										
Sample location	RCT ID	Inst ID #		Gross Counts	(gcpm)	(gcpm) Net Cour (cpm)			able Activity /100cm2)	
		α	β	α	β	α	β	α	β	
PRE						0	0	_0.0	0	
T-4R		11	2	0	42.5	-0.5	-0.4	-1.5	-2	
POST						0	0	0.0	0	
T-4R		3	4	1	35.5	0.7	0.3	2.1	_ 1	
PRE						0	0	0.0	0	
r-4RQC		1	2	1	39	0.5	-3.9	1.5	-16	
POST						0	0	0.0	0	
-4RQC		3	4	1.5	39	1.2	3.8	3.6	15	
PRE						0	_ 0	0.0	0	
I-4R		1 _	2	1	39	0.5	-3.9	1.5	-16	
POST						0	0	0.0	0	
I-4R		3	4	1.5	39	1.2	3.8	3.6	15	
					-	0	0	0.0	0	
						0	0	0.0	0 /	
					-	0	0	0.0	ø	
						0	0	0.0	/ 0	
						0	0	0.0	0	
						0	0	0.0	0	
				H-11 - 11		0	0	00	0	
		-				0	0	0.0	0	
 						0	0	0.0	0	
····			****		(0	0/	0.0	0	
			***************************************		/ /	0	6	0.0	0	
					/	0	0	0.0	0	
		_		/		0	0	0.0	0	
						8	0	0.0	0	
						0	0	0.0	0	
						0	0	0.0	0	
						0	. 0	0.0	0	
_					$\overline{}$	0	0	0.0	0	
		_			<u> </u>	0	0	0.0	0	
						0	0	0.0	0	
	<u> </u>				*	0	0	0.0	0	
						0	0	0.0	0	
						0	0	0.0	0	
	<u> </u>					0	0	0.0	0	
						0	0	0.0	0	
•. •						0	0	0.0	0	
						0	0	0.0	0	
_/			 			0	0	0.0	0	
						0	0	0.0	0	

SURVEY PACKAGE COVER SHEET

Package ID: 2000-01	Building: T881B	20014:
Survey Area: Not Applicable	Survey Unit: Interior	
Survey Unit Description: This trailer was acqu June of 1983. The size of this trailer is approximately	ired and installed at this site, northe / 12' X 60'.	ast of Building 881, in
Building Information:		
Survey Type: Reconnaissance Level Characterization	on Survey D Final Status Survey 2	K
Building Type: Type 1 X Type 2 □ Type 3 □		
Classification: Class 1 🗖 Class 2 🗖 Class 3 X U	Jnknown □	
Contaminants of Concern: Plutonium X Uranium	X Other 🗆	
Justification for Classification: This facility contamination.	y has no known history of rad	iological
Special Support Requirements: Ladder, ma	anlift, scaffolding, and/or remo	ote reach tools and
instrumentation may be required for surveying upper walls and ceilings on the interior and upper walls are ceilings.	ng in overhead areas. Overhea	nd areas include
Special Safety Precautions: Access to over	head areas may require additi	onal controls. Use
caution when working in overheads.		
Isolation Controls:		
Level 1 □ Level 2 X N/A □		
Labeling Requirements: The location when	e fixed and removable surveys	s are performed will
be marked using a sticker or a marker and the	· · · · · · · · · · · · · · · · · · ·	- ;
Survey Package Implementation:		
	0/	N e
RICK ROBERTS		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Radiological Engineer Printed Name	Radiological Engineer Signature	Date
NOT APPLICABLE	N/A	N/A
REFS Manager Printed Name	REFS Manager Signature	Date
H. B. ESTABROOKS		1/21/30
RESS Manager Printed Name Employee #	RESS Manager Signature	Date
Survey Package Closure:	_	
RICK-ROBERTS FUM 1/3/00	La La La Land	8 10 ju
RESS Radiological Engineer Printed Name	SS Radiological Engineer Signature	Date
NOT APPLICABLE	[/A	N/A
REFS Manager Printed Name	FS Manager Signature	Date
TW Manafee X	ton aboth to	8/3/00
RESS Manager Printed Name	S Manager Signature	Plate

8/3/00

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SURVEY PACKAGE TRACKING FORM

Package ID: 2000-01	7. (4) (4) (4) (4) (4) (4) (4) (4) (4) (4)	Building: T881B				
Survey Area: Not Applie	cable	Survey Unit: Interior				
Initiator/ Date	Release Date	Validation Date	Closure Date			
AM 1/21/00	1121/10	\$400, 5/3/20	1880 J. 1872 Jos			
	3,478.00	And and a second				
	11 - 12 - 14 - 14 - 14 - 14 - 14 - 14 -					
· · · · · · · · · · · · · · · · · · ·						

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SURVEY PACKAGE CORRECTION/CHANGE HISTORY FORM

Package ID: 2	2000-01	Building: T881B Survey Unit: Interior					
Survey Area:	Not Applicable						
Change #	Description		Initiator/ Date	PRE			
1	Parisma Land - may	all allow					
	RERESSION MALL			1			
2_	An Break Same		17.44 21414s	177			
	CX -10 - 10 dated						
3	Corrected Scan requiremen	<u>t</u>	KOM / 6-20-00				
	V		'				
			LANGE MAN AND AND AND AND AND AND AND AND AND A				
				181			
				harden a a			
				. 44.840-1			
		and and Administration					
				2.77			

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INITIAL SURVEY PACKAGE DESIGN FORM

Package ID: 200	0-01	Building: T881B		Type: 1			
Survey Area: No	t Applicable	Survey Unit: Inte	erior	Area (m²): 196			
	ription: This traile this trailer is appro	r was acquired and ximately 12' X 60'.	installed at this site,	northeast of Buildi	ng 881, in June of		
Survey Type:			Classification:				
RLC Survey □	FSS X		Class 1 □ Class 2 □ Class 3 X Unknown □				
Random/Uniform Surface Activity Measurements	Biased Surface Activity Measurements	Equipment Surface Activity Measurements	Media Samples	Volumetric Samples	Surface Activity Scans		
28	0	0	0	0	Biased		
Building:		Type:		Survey Area:	and the Miles		
Survey Unit:			Area (m²):		The state of the s		
Survey Unit Desc	eription:			-			
Survey Type:	- Captor in a constant of the		Classification:	2. (2000 g \$ 2.00)			
RLC Survey □	FSS □		Class 1 Class	/*************************************	Jnknown □		
Random/Uniform Surface Activity Measurements	Biased Surface Activity Measurements	Equipment Surface Activity Measurements	Media Samples	Volumetric Samples	Surface Activity Scans		
		·					
D 1111			Survey Area:				
Building:		Type:		Survey Area:			
Survey Unit:		Type:	Area (m²):	Survey Area:			
	eription:	Type:	Area (m²):	Survey Area:			
Survey Unit:	ription:	1ype:	Area (m²): Classification:	Survey Area:			
Survey Unit: Survey Unit Desc	FSS 🗆	Type:			Jnknown □		
Survey Unit: Survey Unit Description Survey Type:		Equipment Surface Activity Measurements	Classification:		Jnknown □ Surface Activity Scans		
Survey Unit: Survey Unit Description Survey Type: RLC Survey Random/Uniform Surface Activity	FSS Biased Surface Activity	Equipment Surface Activity	Classification: Class 1 □ Class	2 □ Class 3 □ U Volumetric	Surface Activity		
Survey Unit: Survey Unit Description Survey Type: RLC Survey Random/Uniform Surface Activity	FSS Biased Surface Activity	Equipment Surface Activity	Classification: Class 1 □ Class	2 □ Class 3 □ U Volumetric	Surface Activity		
Survey Unit: Survey Unit Description Survey Type: RLC Survey Random/Uniform Surface Activity Measurements	FSS Biased Surface Activity	Equipment Surface Activity Measurements	Classification: Class 1 □ Class	2 Class 3 U Volumetric Samples	Surface Activity		
Survey Unit: Survey Unit Description Survey Type: RLC Survey Random/Uniform Surface Activity Measurements Building:	FSS Biased Surface Activity Measurements	Equipment Surface Activity Measurements	Classification: Class 1	2 Class 3 U Volumetric Samples	Surface Activity		
Survey Unit: Survey Unit Description Survey Type: RLC Survey Random/Uniform Surface Activity Measurements Building: Survey Unit:	FSS Biased Surface Activity Measurements	Equipment Surface Activity Measurements	Classification: Class 1	2 Class 3 U Volumetric Samples	Surface Activity		
Survey Unit: Survey Unit Description Survey Type: RLC Survey Random/Uniform Surface Activity Measurements Building: Survey Unit: Survey Unit Description Survey Type: RLC Survey RLC Survey	FSS Biased Surface Activity Measurements	Equipment Surface Activity Measurements	Classification: Class 1 □ Class Media Samples Area (m²):	2 □ Class 3 □ U Volumetric Samples Survey Area:	Surface Activity		
Survey Unit: Survey Unit Description Survey Type: RLC Survey Random/Uniform Surface Activity Measurements Building: Survey Unit: Survey Unit Description	FSS Biased Surface Activity Measurements eription:	Equipment Surface Activity Measurements	Classification: Class 1 □ Class Media Samples Area (m²): Classification:	2 Class 3 U Volumetric Samples Survey Area:	Surface Activity Scans		

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SURVEY PACKAGE SURVEY/SAMPLING INSTRUCTIONS FORM

Package ID: 2000-01	Building: T881B
Survey Area: Not Applicable	Survey Unit: Interior

Survey Unit Description: This trailer was acquired and installed at this site, northeast of Building 881, in June of 1983. The size of this trailer is approximately 12' X 60'.

	Minimum Survey/Sampling Measure	ment Requirements			
Measurement	Number and Type	Comments			
Surface Activity	INTERIOR FLOORS/WALLS/CEILINGS:	SEE NOTE 1			
Measurements	28 surveys will be taken per the attached survey	SEE NOTE 2			
	map.	SEE NOTE 3			
		SEE NOTE 4			
	QUALITY ASSURANCE SURVEYS	SEE NOTE 5			
	QUILDITY TABOURA TO SOME DESCRIPTION	SEE NOTE 6			
	INTERIOR FLOORS/WALLS/CEILINGS:				
	5 surveys will be taken per direction from radiological engineering.	·			

SURVEY PACKAGE SURVEY/SAMPLING INSTRUCTIONS FORM (cont)

Package ID: 2000-01	Building: T881B
Survey Area: Not Applicable	Survey Unit: Interior

Survey Unit Description: This trailer was acquired and installed at this site, northeast of Building 881, in June of 1983. The size of this trailer is approximately 12' X 60'.

Minimum Survey/Sampling Measurement Requirements								
Measurement	Number and Type	Comments						
Surface Scanning	INTERIOR FLOORS:	SEE NOTE 1						
	Biased surface scans will be performed on the interior floors in areas where contamination	SEE NOTE 2						
	would accumulate. This includes seams, cracks,	SEE NOTE 3						
	corners, doorways and boundaries between different types of flooring.	SEE NOTE 4						
		SEE NOTE 5						
Champe #3 12700 96-20-00	No more than 10% of the total area will be scanned.	SEE NOTE 6						
	QUALITY ASSURANCE SCAN SURVEYS INTERIOR FLOORS:							
	5 percent of total number of scans or of total scan area will be taken per direction from radiological engineering.							
Media Samples	NONE							
	·							
Volumetric Samples	NONE							
Isotopic Gamma	NONE							
Scans								

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SURVEY PACKAGE SURVEY/SAMPLING INSTRUCTIONS FORM (cont)

Package ID: 2000-01	Building: T881B
Survey Area: Not Applicable	Survey Unit: Interior

Survey Unit Description: This trailer was acquired and installed at this site, northeast of Building 881, in June of 1983. The size of this trailer is approximately 12' X 60'.

Survey/Sampling Instructions

NOTE 1: Surveys of the area were established on a random basis and are delineated on page 14, RSFORMS-16.01-10, of the survey package. Survey points will be taken in the middle of the survey grid and will be cross-referenced to a common reference point in the trailer. These surveys will be taken in accordance with PRO-476-RSP-16.02, "Radiological Surveys of Surfaces and Structures", for the following:

- Total alpha contamination
- Total beta contamination
- Removable alpha contamination
- Removable beta contamination
- Biased scan measurements for alpha then beta/gamma contamination

For total alpha and total beta surveys, the LAB will be determined at each survey point by placing a piece of plywood over the probe face that is at least 0.5 inch thick and performing an alpha count and a beta count. The material background for both total alpha surveys and total beta surveys will be considered to be 0 dpm/100 cm².

Alpha scanning using the NE Electra for the DP6-BD and DP8A probes will be in accordance with Letter SJR-001-99, "Alpha Scan Rates for Building 779 Cluster Final Status Surveys," and Letter SJR-004-99, "Performance of Scan Surveys with the Bicron/NE DP8 Probe for Building 779 Cluster Final Status Surveys," respectively. Beta scanning using the NE Electra.

NOTE 2: Quality assurance prescribed surveys of the area will be taken in accordance with PRO-476-RSP-16.02, "Radiological Surveys of Surfaces and Structures" per the requirements in PRO-479-RSP-16.05, "Radiological Survey/Sample Quality Control," for the following:

- Direct alpha contamination
- Direct beta contamination
- Scan measurements for alpha then beta/gamma contamination

The location of quality assurance surveys will be delineated by radiological engineering after the initial surveys are performed. Quality assurance surveys will be performed by a different individual than performed the original survey.

NOTE 3: The RCT shall document the results for all surveys performed and maintain with the survey instructions package.

NOTE 4: All survey instruments will be performance checked both prior to and after performing surveys, and both performance checks will be documented. Contact Radiological Engineering for direction if an instrument fails the post performance check.

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SURVEY PACKAGE SURVEY/SAMPLING INSTRUCTIONS FORM (cont)

Package ID: 2000-01Building: T881BSurvey Area: Not ApplicableSurvey Unit: Interior

Survey Unit Description: This trailer was acquired and installed at this site, northeast of Building 881, in June of 1983. The size of this trailer is approximately 12' X 60'.

Survey/Sampling Instructions

NOTE 5: The following MDA requirements are a goal for each survey instrument. The MDA shall not exceed the Investigation Levels outlined in NOTE 6.

- 10 dpm/100 cm² for removable alpha contamination
- 50 dpm/100 cm² for total alpha contamination
- 500 dpm/100 cm² for removable beta contamination
- 2500 dpm/100 cm² for total beta contamination
- 150 dpm/100 cm² for alpha scan
- 7500 dpm/100 cm² for beta scan

NOTE 6: If a survey result exceeds the following investigation levels, contact radiological engineering before proceeding:

- 15 dpm/100 cm² for removable alpha contamination
- 75 dpm/100 cm² for total alpha contamination
- 750 dpm/100 cm² for removable beta contamination
- 3750 dpm/100 cm² for total beta contamination
- 225 dpm/100 cm² for alpha scan
- 11250 dpm/100 cm² for beta scan

An investigation will be performed into the elevated results.

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Date

								ŀ	RSFORM PA	S-16.02- GE 9 of	
			TOTAL	SURFACI	E ACTIV	VITY SURV	EY DATA	FORM			
Survey A	rea: NOT AP	PLICAE	BLE	Survey Ur	nit: INT	ERIOR		Build	ling: T881	В	
	nit Description iler is approxim			cquired and	d installe	d at this site,	northeast of	Building 8	81, in June	of 1983.	The size
						Instrument	Data				
Inst.	/ Time No.: α					Probe No.:	:				
Inst.	Νο.: β,γ		<u> </u>			_ Probe No.:					
Ιβ,γ	iency (%): α C (dpm/100 cm ²) c Correction Fac							****	βγ	(dpm	/100 cm ²)
Cal. I	Due Date:					Surve	ey Type:	Alpha	Beta	_	
Sample Number	Location / Description	Gros	s Counts	LAB	Bkgd om)	1	Counts pm)		Activity 100 cm ²)	Gross A Mat. Ar	Activity Activity - ea Bkgd. 00 cm ²)
		α	β,γ	α	β,γ	α	β,γ	α	β,γ	α	β,γ
					_			<u> </u>			
		<u></u>									
						<u> </u>					
				-		 		 	<u> </u>		
									<u> </u>		
-		<u></u>			-						

RCT Technical Supervisor Printed Name RCT Technical Supervisor Signature Employee # Date

Employee #

* (Gross Cts - LAB) ÷ (Eff.) × CF = Gross Activity

**Gross Activity - Mat. Bkg = Net Activity

Employee # RCT Signature

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RCT Printed Name

		REMOVABLE S	SURFACE ACT	TIVITY DA	ΓA SURVE	Y FORM		
Survey A APPLIC	rea: NOT ABLE	Survey Unit: I	NTERIOR		Buildi	ng: T881B		
Survey U	nit Description: Tiler is approximatel	his trailer was acquir	red and installed	at this site, r	northeast of I	Building 881	, in June of 19	83. The size
01 11110 114	is approximate.	12 11 00 .	Smear Survey l	nstrument I	Data		· · · · · · · · · · · · · · · · · · ·	
Count l	Date / Time							
Inst. No	D.:	βγ	Probe N	lo.:			·	år.
Inst. Ef	ficiency (%): α	βγ	0. I DI	· C.	0		. (
Cal. Di	upin/100 cm): ie Date:	α	<u>βγ</u> Inst. Bκ Survey	G: α Type: Alp	ha	γ Beta-Gamn	<u>(cpm)</u> na	
				- J F-1				
···			Removable	Survey Data				
Swipe Number	Location / Description	Comments	Gross C		1	Counts	Removabl (dpm/	e Activity *
			α	βγ	α	βγ	α	βγ
·								
								2
			-	· · · · · · · · · · · · · · · · · · ·				
<u> </u>								
							<u> </u>	
					ļ			, un un
	·	* (GRO	SS Cts - Inst. Bl	(g) ÷ (Eff.) =	ACTIVITY			
RCT Printed N	ame	Employee #		RCT Signature			Date	
RCT Technica	Supervisor Printed Name	Employee #		RCT Technical	Supervisor Signatu	re	Date	

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	SURI	FACE SC	ANNI	NG DATA	SHEET	
urvey Area: NOT A	PPLICABLE	Survey Unit	t: INTER	IOR	Building: T881B	
Survey Unit Descripti of this trailer is approxi	on: This trailer wimately 12' X 60'.				t of Building 881, in Ju	ne of 1983. The size
2		Sca	an Instrun	nent Data		
Date / Time:						
Inst. No.: Cal. Due Date:		Probe No	o.: ype: /	Alpha Beta-Ga	amma	
Can Date Date.		Survey i	ypc. 7	Aipiia Beta-Ge	amma	
		S	Scan Surv	ey Data		
Sample Number	Locatio Descript		C	omments		can 00 cm ²)
	·				α*	β,γ*
· · · · · · · · · · · · · · · · · · ·						
·						
						
			·			
			· · · · · · · · · · · · · · · · · · ·			
RCT Printed Name	Em	ployee #		RCT Signature		Date
RCT Technical Supervisor Printed	Name Em	ployee #		RCT Technical Supervisor S	signature	Date

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^{*} If an elevated count rate or a sustained audible increase in the count rate is observed during the scan survey, OR the rate meter alarm sounds, THEN: Scan the immediate vicinity to determine the bounds of the elevated activity, and take a "Total Surface Activity" measurement and record. Mark the location of most elevated activity on the surface with a self-adhesive label or equivalent, ensuring that the marking is not applied directly over the point of interest. Further analysis is required by RS Supervision.

Date

SURVEY PACKAGE CALCULATION WORKSHEET

Package ID:	2000-01	1000000	Building: T881B					
	: Not Applicable	777 TO 100 TO 1	Survey Unit: Interior					
Survey Unit	• • • • • • • • • • • • • • • • • • • •		I and installed at this site, northea	st of Building 881, in				
X Total Sur	face Activity	***************************************	☐ Media Surface Activit	<u></u>				
X Removab	le Surface Activit	y	☐ Volumetric Surface A	ctivity				
_	te the relative shift Δ /(DCGL-LBGR)/ σ_s	$\sigma_{ m s}.$						
	e of 1.0 was chosen sir 1.0 maximizes the num		is available and Δ/σ_s may vary be uired.	tween 1.0 and 3.0. The				
that a r		rom the survey uni	hift and Table 7-1. Sign p is the α t will be less than the DCGL $_{\rm w}$ wh 345					
Typica		ed at RFETS are 0.	and $Z_{1-\beta}$ and the selected decision 6.05 and 0.05 respectively. This y.					
Step 4: Calcula	ate Number of Data Po	oints (N) for Sign T	est using the following equation:					
$N = \frac{1}{2}$	$\frac{(Z_{1-\alpha} + Z_{1-\beta})^2}{4(Sign p - 0.5)^2}$	= 23.22						
	e the number of data pe data losses. 23.22*1		sure sufficient power of the tests	and to allow for				
Conclusion:								
A total of 28 da	ta points will be neede	ed to satisfy MARS	SIM statistical requirements.	Ωο				
RICK ROBE	RTS			1/38/20				
Project RE Printed Na			Project RE Signature	Date				
H.B. ESTAE	BROOKS			1/2//00				

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RESS RE Printed Name

129

RESS RE Signature

Employee #

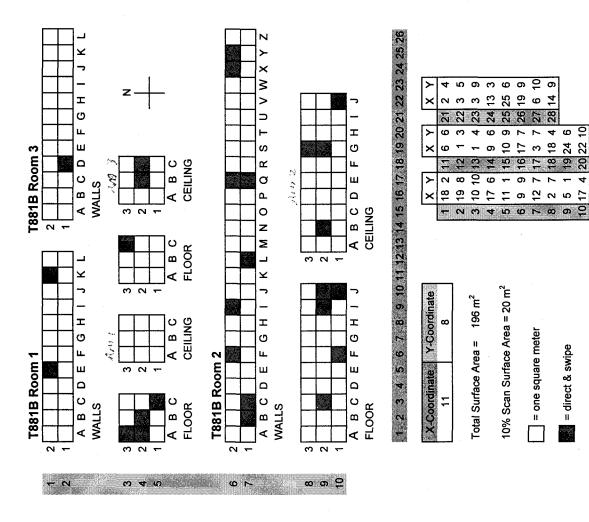
SURVEY PACKAGE SURVEY MAP

Package ID: 2000-01	Building: T881B
Survey Area: Not Applicable	Survey Unit: Interior
Survey Unit Description: This trailer was acquired at of 1983. The size of this trailer is approximately 12' X 60	nd installed at this site, northeast of Building 881, in June 0'.
Floor Area (m ²): 48	Total Area (m²): 196
SEE ATTACHED SURVEY MAP	

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SURVEY PACKAGE VALIDATION CHECKLIST FORM

Package ID: 2000-01	Building: T881B	
Survey Area: Not Applicable	Survey Unit: Interior	
Survey Type: Reconnaissance Level Characterization	Survey Final Status Surve	ey X
All Documentation Reviewed for Completion	RCT Supervisor	PRE
Scan Surveys		DOM
Total Activity Surveys	N	Em
Exposure Rate Surveys	NA	N/A
Removable Surveys	<i>y</i> /	EDM
Media Samples	N/A	N/A
Volumetric Samples	N/A	N/A
All Surveys and Samples Accounted For	RCT Supervisor	PRE
Scan Surveys	N	DAM
Total Activity Surveys	N	KOSM
Exposure Rate Surveys	N/A	N/A
Removable Surveys	N. C.	DBM
Media Samples	N/A	N/A
Volumetric Samples	N/A	N/A
Comments:		
RCT Supervisor Printed Name	CT Supervisor Signature	Date
RICK ROBERTS EDM 6/12/00	S. N. M. A.	100 6-18-00
Project RE Printed Name	Project RE Signature	Date
H.B. ESTABROOKS TW Mahattey	Ch Wahala	8-3-00
RESS Manager Printed Name	RESS Manager Signature	Date

Damoo

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Survey Area:

N/A

Survey Unit:

Interior

Building:

T881B

Survey Unit Description:

Floors, walls, and ceilings of Trailer T881B

8. POST-PERFORMANCE ACTIVITIES

8.1 Documentation

Reviewed the above mentioned Survey Package and associated measurement data in accordance with PRO-478RSP-16.04, Radiological Survey/Sample Data Analysis. The following items are noted:

- 1. Various notes are provided on the Survey Package DQA Checklist. See DQA Checklist.
- 2. Various notes are provided within the Survey Package. See Survey Package.
- 3. DQA Checklist should have location to input Survey Area, Survey Unit, Building and Survey Unit Description to ensure improved tracking.
- 4. Section 7.2.2 Accuracy, of RSP-16.04 should be rewritten to provide usable accuracy analysis process.
- 5. Spreadsheets provided to perform statistical calculations.
- 6. Several forms have been generated to replace forms from RSP-16.02. RSP-16.02 should be revised to reflect this change/improvement.
- 7. Total number of data points is very conservative. Using MARSSIM guidance it can be shown that significantly less data points are statistically acceptable. See spreadsheets.
- 8. Survey maps need improvement. Methodology employed is one that was used prior to RSP-16.01 approval. Recommend scale maps with grid overlays or CAD drawing in the future. See B779 Closure Project maps as examples.
- 9. See data sheets for corrected data.

Prepared by: 500. mg/2-2900

(09/30/99)

APPENDIX A

Page 1 of 1

DQA Checklist

		Performed By	Comments
§	Item	(Initials/Date)	(number & attach)
7.1	Data Verification	zmu/2-27-00	
7.1[1]	DQOs implemented as prescribed	EMM/2-29-50	
7.1[2]	All required supporting documents present	xxx /2-24-00	·
7.1[3]	Outliers / anomalies addressed	EDM/2-29-00	
7.2	Data Validation	Emi/2-29-00	
7.2.1	Survey/Sample Precision	Em /2-29-00	see spreadsheets
7.2.2	Survey Accuracy	EM /2-29-00	no samples taken
	Sample Accuracy	NA	no samples taken
7.2.3	Data Representative of survey unit	Emu/2-29-00	
7.2.4	Survey/Sample/Scan Completeness	Em/2-24-00	100%
7.2.5	Data Comparable to related units	Em /2-24-00	yes Group B see Spreadsheets N/A
7.3	DQA complete	Em. 2-27-50	see speedsheets
7.3[3]	Any measurement > DCGL _w ?	NA	N/A
7.3[4]	Mean > DCGL _w	NA	N/A
7.3.[5]	Any measurement > maximum DCGL	NA	N/A
7.4	Evaluation	NA	NA
7.4[1][D]	New survey package (if req'd)	N/A	N/A
7.4[1][E]	Radiological improvement report (if req'd)	N/A	NA
7.4[2]	Verify documentation complete]	NA
8.0	Peer review	d- 6/13/00	1 '
	Package submitted to project management		
9.1	Records to Records Center (copy to project files)	PM /8-22-00	

NOTE: The DQA Flow Chart (Appendix B) is provided as aid to illustrate the DQA process when performing survey/sample data analysis activities describe in this procedure.



Removable Activity

(dpm/100 cm²) Alpha

Survey Unit - Interior Survey Area - N/A

Building - T881B

Survey Unit Description - Floors, walls and ceilings of Trailer T881B

Removable Contamination Data Sheet

20 dpm/100 cm² 28

DCGLW

Std Dev Mean

6.0 -0.3 -0.3

No measurement exceeds the DCGL_w

 0.8 dpm/100 cm^2 1.1 dpm/100 cm²

-0.3

1.2 1.2 1.2 1.2

Removable Activity

(dpm/100 cm²) Beta

Survey Unit - Interior Survey Area - N/A

Building - T881B

Survey Unit Description - Floors, walls and ceilings of Trailer T881B

Removable Contamination Data Sheet

1000 dpm/100 cm²

DCGLW

Std Dev Mean

No measurement exceeds the DCGL_W

-0.4 dpm/100 cm² 29.1 dpm/100 cm²

Total Surface Activity (dpm/100 cm²) Alpha 6 6

mudicy (min on m		:				
y Y	Survey Area - N/A	A/N - 6				
9	Survey Unit - Interior	- Interior				
۰ ۲-	Building - T881B	881B				
19	Survey Unit	Descripti	on - Floor	s, walls an	d ceilings o	Survey Unit Description - Floors, walls and ceilings of Trailer T881B
က	Total Surface Activity Data Sheet	e Activity	Data She	et		
0	DCGL _w	100	100 dpm/100 cm ²	;m²		
22	_	28				
က	Mean	7.4	7.4 dpm/100 cm ²	:m²		
16	Std Dev	7.9	7.9 dpm/100 cm ²	:m²		
22			ı			
0	No measurement exceeds the DCGL _w	ment exc	eeds the D	CGLW		
0	No measurement exceeds 75% of the the DCGL _w	ment exc	eeds 75%	of the the	DCGL _W	
O						
0	Precision					
22						
O	Location	ပ်	ပ	ပ္ပံုင္	$(C_{1+}C_2)/2$	RPD
က	K-2W	9	-19	25	-6.5	-384.6154
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က	C-1W	က	က	0	က	0
0	C-2F	တ	-12	21	-1.5	-1400
0	C-3F	တ	9	က	7.5	40
0						
11	Precision (RI	PD) is out	of specifica	ation due to	Precision (RPD) is out of specification due to low value survey	ırvey
18	measurements	ıts				
က						
ரை	Recalculated N	Z				
•						

9

 $\Delta/\sigma_s = 6.33$ (default to 3) Sign p = 0.998650 N = 10.88 10.88*1.2 = 13.05 N = 14

 $\Delta/\sigma_{\rm s} = ({\rm DCGL\text{-}LBGR})/\sigma_{\rm s}$

 $\Delta/\sigma_{\rm s} = (100-50)/7.9$

Total Surface Activity (dpm/100 cm²) Beta -345

.345 -111 186 143 208 -208 -309 -309 -309 -309 -394 -160 -20 -20 -20 -20 -20 -20 -20 -20	Survey Area - N/A Survey Unit - Interior Building - T881B Survey Unit Description - Floors, walls an Total Surface Activity Data Sheet DCGL _w 5000 dpm/100 cm ² Nean -26.9 dpm/100 cm ² Mean -26.9 dpm/100 cm ² Std Dev 200.6 dpm/100 cm ² No measurement exceeds the DCGL _w No measurement exceeds 75% of the the Precision C-1 Cation C ₁ C ₂ C ₁ -C ₂ K-2W -345 59 -404 B-2F 208 705 -497 C-1W -251 -39 -212 C-2F 130 150 -20 C-3F 286 268 18 Precision (RPD) is out of specification due to measurements	a - N/A t - Interior 881B t Description 28 -26.9 200.6 2ment excepament excep	terior B scription - Floors, w ctivity Data Sheet 28 -26.9 dpm/100 cm² 200.6 dpm/100 cm² 100.6 dpm/10	s, walls an et :m² :m² :m² cGLw of the the -404 -497 -212 -20 18	Survey Area - N/A Survey Unit - Interior Building - T881B Survey Unit Description - Floors, walls and ceilings of Tra Survey Unit Description - Floors, walls and ceilings of Tra Total Surface Activity Data Sheet DCGL _w 5000 dpm/100 cm² Amean -26.9 dpm/100 cm² Std Dev 200.6 dpm/100 cm² Std Dev 200.6 dpm/100 cm² No measurement exceeds the DCGL _w No measurement exceeds 75% of the the DCGL _w Precision Coation C ₁ -C ₂ C-1-C ₂ C ₁ -C ₂ B-2F 208 C-10 -20 C-2F 130 C-3F -20 C-3F -20 C-3F -26 C-3F -27 C-3F -26 C-3F -27 C-3F -26 C-3F -27	Survey Area - N/A Survey Unit - Interior Building - T881B Survey Unit Description - Floors, walls and ceilings of Trailer T881B Survey Unit Description - Floors, walls and ceilings of Trailer T881B Survey Unit Description - Floors, walls and ceilings of Trailer T881B Survey Unit Description - Floors, walls and ceilings of Trailer T881B DCGLw 5000 dpm/100 cm² Mean -26.9 dpm/100 cm² Std Dev 200.6 dpm/100 cm² Std Dev 200.6 dpm/100 cm² No measurement exceeds the DCGLw No measurement exceeds 75% of the the DCGLw Precision C₁-C₂ C₁-C₂ C₁-C₂ C₁-C₂ C₁-C₂ R-2W -345 59 -404 -143 282.5175 B-2F 208 705 -497 456.5 -108.8719 C-2F 130 150 -20 140 -14.28571 C-3F 268 18 277 6.498195 Precision (RPD) is out of specification due to low value survey
-195 286 104	Recalculated N	Z D				
27	$\Delta/\sigma_{\rm s} = ({\rm DCGL\text{-}LBGR})/\sigma_{\rm s}$ $\Delta/\sigma_{\rm s} = (5000\text{-}2500)/200.6$.L-LBGR)/o	آه .6			

 $\Delta/\sigma_s = 12.46$ (default to 3) Sign p = 0.998650 N = 10.88 10.88*1.2 = 13.05 N = 14 Survey Area: NA Survey Unit: NACKOC Building: TEBIB

Survey Unit Description FLOCK, What, & Colones of TRAILER TEBIB

SURVEY SIGNATURE SHEET

Removable /Total Surface Activity Performed By

MALK LAWSON		Modan	2/10/00
RCT Printed Name		ROT Signature	Date
R. KELLEY		that -	2/14/00
RCT Printed Name		RCT Signature	Date
? CHITTUM		A Chilly	2/14/00
RCT Printed Name		RCT Signature	Date
MAKK LAWSON		Masses	2/14/00
RCT Printed Name		RCT Signature	Date
		· ·	Company of the Compan
RCT Printed Name	Employee #	A RCT Signature	Date
		PA	
RCT Printed Name	Employee #	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date

Quality Control Measurements Performed By

RCT Printed Name Employee # RCT Signature RCT Printed Name Employee # RCT Signature Date RCT Printed Name Employee # RCT Signature Date RCT Printed Name Employee # RCT Signature Date				
RCT Printed Name Employee # RCT Signature Date RCT Printed Name Employee # RCT Signature Date RCT Printed Name Employee # RCT Signature Date	Arome Parker		Waker On-	2/15/00
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	RCT Printed Name	Employee #	RCT Signature	Date
	-	The state of the s		
RCT Printed Name Employee # RCT Signature Date	RCT Printed Name	Employee #	RCT Signature	Date
RCT Printed Name Employee # RCT Signature Date				
	RCT Printed Name	Employee #	RCT Signature	Date

Survey Reviewed By

R. Worster		2/24/00
RCT Foreman Printed Name	RCT Foreman Signature	Date

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Survey Area: MA Survey Unit: MTERIOR Building: TEBIB
Survey Unit Description
FLOORS, WALLS, & CEILLES OF TIMESE TEBIS.

INSTRUMENT DATA SHEET

Removable Contamination Survey Instrument Data

Manufacturer	EBEKENE	LBEFULE				
Model	BC-4	SACH				
Inst. ID #	1	2	3	4	5	6
Serial #	BCEFE	921				
Cal. Due Date	7.12.00	7.11.00			A	
Analysis Date	2.14.00	2-14-00			ot	
Instrument Bkg(CoA) 10-min count time	40.0	OA				
Instrument Eff (%)	25	53		and the same of th		
Instrument MDA 2-min count time Apm	70	4.5				

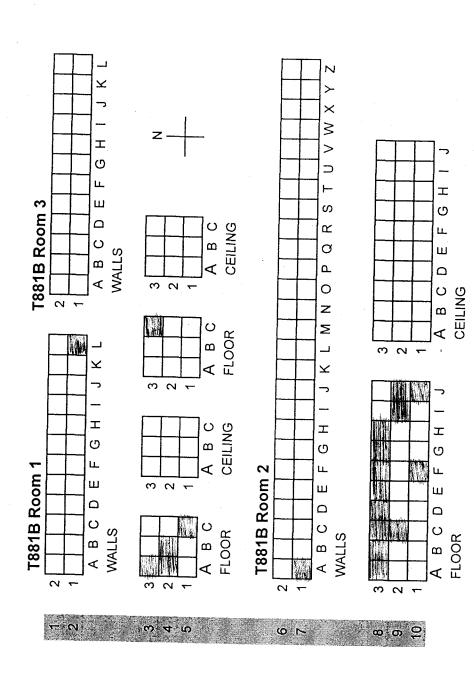
Total Surface Activity Instrument Data

nufactur	er	N.E.	Tech.	N.E.	Tech.	N.E.	Tech.	, J'è	**************************************	.√€	 		
Model		Ele	ctra	Ele	ectra	Ele	ctra	65	てやす		CTRA		
Inst. ID#			7		8		9	1	0	1	11	1	2
Serial # / P	robe #	1547	1432	1370	1158	1549	1354	2318	1956	2519	1924		
Cal. Due Da	ate	5.9	000	4.2	(6.00	6.1	-1-00	5-3	00	€, c	100	N	
Survey Dat	е	2.0	5.00	2.	14.00	- 2.1	1.00	21	4.00	2.1	15.00		R
Alpha Bkg 90-sed((2)x) count time	Beta Bkg 90-sec(C2A) count time	2.0	388	27	479	1.3	520	2.0	377	3.3	492		
Alpha Eff (%)	Beta Eff (%)	21.22	30.12	21.92	29,47	18.50	30.11	22.35	30,36	21.54	30.65		
Alpha MDA 90-sec Apm count time	Beta MDA 90-sec dpm count time	34	249	2531	268	133	294	2.2	249	100	7E1		

Page $\underline{2}$ of $\underline{3}$

Kage ID: 2000-01 Building: T881B Survey Unit: Interior

CAS COCATIONS:



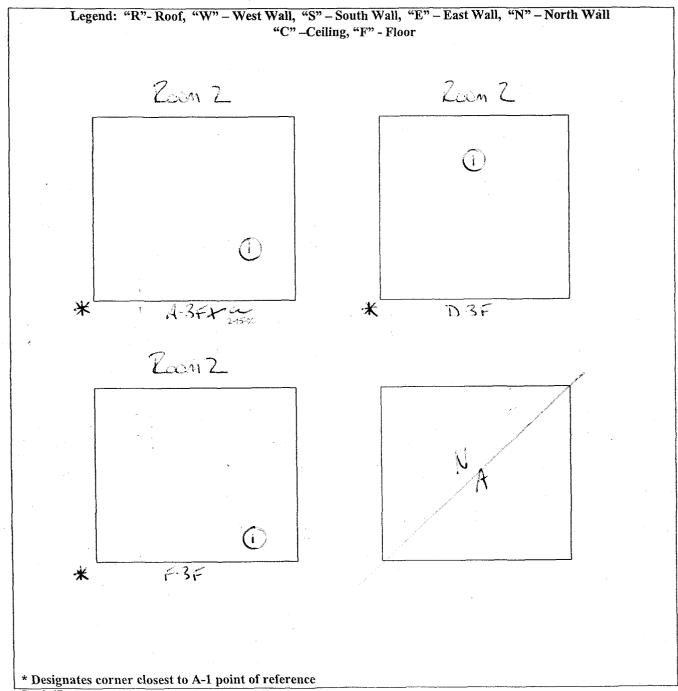
MOST CAPECY TO FLUS COUNTRACTORY DUE TO THESE MASSISS THE TRAFFIC! LIKELIDESS IN THESE ARSINS VOICE: Sea CORTIONS WHEEK LOSS CROSS BASON OF 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26

746€ 3 OF 3

Final Survey NE Electra Scan & Investigation Survey Map

Survey Area:	Survey Unit: Building: TEBIB				
Survey Unit Description:	MUS. + CSILLAGS OF TRAI	LER TEBIB			
RCT Initials/Date: All 2/14/00	RCT Initials/Date: PC 2-14-00	RCT Initials/Date: NA			

Refer to the Final Survey NE Electra Scan & Investigation Survey Form for instrumentation, surveyor & approval information.



Results/Comments:

Electra alpha scans were performed at the locations detailed on the survey map(s). All required accessible areas were scanned. All initial scan results were <225 dpm/100cm², unless noted on the survey form.

Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the survey form.

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Page 4 of 3

Final Survey NE Electra Scan & Investigation Survey Form

Survey Area:			Survey U	Init:	ERICK	Building: TEOLB						
Survey	Unit Des	cription:	Service of the servic						16			
		El	ectra DP-6 B		S, + CEILIGS OF TRAILER TESIB. Electra DP-6 Alpha							
Loc. ID#	RCT	Inst.	Elevated	60-sec PAT	RCT	Inst.	4-sec Audible	30-sec Static	90-sec PAT			
	ID#	ID#	Audible observed? "Y" or "N"	(dpm/100cm2)	ID#	ID#	observed? "Y" or "N"	(gcpm)	(dpm/100cm ²)			
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L-In		9	2			10	2	/				
A-2F		q	۷,	1:/		10	2					
A-3F		ϵ_{\langle})	. */A		10	N	A.A	1971			
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C-3F	÷	G.	2	N		۵	\sim					
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5-24		9	N	/		10	N	/	<u> </u>			
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3-129 c:\Final Survey\DPElectraSurvey020900.doc

Page <u>5</u> of <u>8</u>

Survey Unit Description Funds white TESTS

Survey Unit Description

Total Surface Activity Data Sheet													
Sample location	RCT ID#	Inst ID#		# Survey count tim		ime LAB (cpm)		Gross Count (gcpm)		Net counts (cpm)		Net Activity (dpm/100cm2)	
		α	β	α	β	α	β	α	β	įα	β	α	β
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K-26)		7	7	90	90	0.0	310	1.3	336	1.3	~34	4	
A-2F		7	د")	90	90	3.5	468	2.7	525	<i></i> ن.(ن	57	-3	186
A-36		7	7	90	90	0:0	454	4.0	448	पर	44	19	143
32F		7	7	90	90	1.3	444	20	508	6-3	Cul	3	208
C-1F		7	-	90	90	2.7	489	2.7	489	0.0	0.0	0.0	0.0
Zoon :				90	90	2000 Charles and Property and				park on a superior language of the second contract of			
B-1W		7	7	90	90	2.0	440	(6.7)	345	. 4.7	-95	2.2	-30°G
C-1W		7	7	90	90	2.0	422	2.7	345	0.7	-77	3	-251
F-2W		7	7	90	90	1.3	462	4.7	373	3.4	-95	ile	- 304
.I-2W		7	7	90	90	2.0	444	6.7	346	4.7	-0,8	22	- 310
شاسا		.7	7	90	90	2.7	439	2.7	431	0.0	12	0	×10"3
<u>ω</u> -1ω		.7	.7	90	90	3,3	378	3.3	727	0.0	49	0	160
Q-2W		7	7	90	90	1.3	470	3.3	349	2.0	-121	G	-394
X-JW		7	7	90	90	1.3	448	1.3	350	0.0	~ 6 0	Ĉ	195
42m		7	7	90	90	7.0	451	6.1	370	4.7	-81	7.2	-264
C-2F		.7	7	90	90	1.3	472	3.5	512	2.0	40	ϵ_4	+130
F-IF		7	7	90	90	లి.0	477	0.7	47)	0.1	٥	3	0
I-2F		7	7	90	90	1.3	465	4.7	459	3.4	-6	160	~ 20
5-18		7	7	90	90	43	444	2.0	479	0.7	35	3	114
5-24		7	7	90	90	1.3	448	1.3	482	0.0	34	0	111
B-2C		9	Ğ	90	90	4.0	447	4.0	465	0.0	18	0	60
C-2C		CI	9	90	90	2.7	429	2:7	466	0.0	31	0	123
C-3L		G	Cí	90	90	1.3	431	3.3	482	2.0	51	i t	169
5-16		Ci	4	90	90	رَيْ	433	4.0	463	3.3	30	18	100
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QC	And the second s			90	90								

Note: QC measurements are to be collected by a different technician than the original survey. Mark the QC location number in the "Sample Location" column. Material background is assumed to be zero unless otherwise noted. "LAB" ~ local area background.

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Survey Area: N/A Survey Unit: INTERIOR Building: TEBIS

Survey Unit Description
FLOORS, WALLS, & CEILINGS OF TRAILER TEBIS

Total Surface Activity Data Sheet (CONTINUATION SHEET) Sample RCT Inst ID # Survey count time LAB Gross Count Net counts Net Activity													
Sample RCT location ID#		Inst ID#		Survey count time (sec)		LAB (cpm)		Gross Count (gcpm)		Net counts (cpm)		Net Activity (dpm/100cm2)	
		α	β	α	β	α	β	α	β	α	β	α	β
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8-20		a	9	90	90	1.3	465	27	433	1.4	-32	.7	466
C-ZC		G	G	90	90	7.7	425	3.5	433	0.6	\mathcal{S}	3	272
	-			90	90								
				90	90								
				90	90								
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- <u>IW</u> QC		11	11	90	90		309 385	3.3	373	0.6	216	3	-34
-2F QC		11	11	90	90	3.3	485	0.7	531	- 2.6	-12	112	150
-3FQC		11	. 4	90	90	3.3 Z.0	442	3.3	574	1.3	46 E2	6	750 248

Not assurements are to be collected by a different technician than the original survey. Mark the QC location number in the "Sample Location" column. Material background is assumed to be zero unless otherwise noted. "LAB" ~ local area background.

Page _____ of _____

Survey Area: NIA Survey Unit: INTERICIL Building: TEETB
Survey Unit Description
Fronts: What Concases of Transact 18818

Sample RCT Location ID #		Inst ID			Counts	Net C	Removable Activity		
ocation	ID#	#	ŧ	(gc	pm)	(cr	om)	(dpm/1	00cm2)
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2-2m		2	1	0.5	45	0.4	5	1-2	20
マド		2	1	6.0	47	-0.1	7	-0.3	28
135		2	1	0.5	32	0.4	- B	1.2	-32
3 2F		2	1	8.5	42	0. प	2	1.2	ع
-1F		2	1	1.0	42	ઇ. વ	2	2.7	ε,
2w.									
3-1W		2	1	1.0	47	6.9	7	2.)	28
214		2	1	(.0	31	C.C.	e G	2.7	3G
2u		2	1	1.0	27	10.9	-13	2.7	-52
E-26		2	1	Ú.S	36	0,4		1.2	-16
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12-14		2		0.0	is	~ C- (5 6000	- O · Š	20
2-26		2	<u> </u>	0.0	41	-0.1	4 4	0.3	4
x-20		2	1	0.0	54	- CA	14	-0.3	56
1-20		2	1	ن، ن	38	0.4	-2	1.2	-8
<u>C-26</u>		2		0.5	44	0.4	4	1.2	16
F-1F		2		0.0	99	-01	4	-0.3	16
I-21		2	,	0.5	35	2.4	5	1.2	-20
J-18		2	<u> </u>	0.5	7,	0.4	- E	1.2	-32
5-21		2	1	0.0	3L 52	-0.1	12	-5/3	43
B 20		2	1	0.5	40	0.4	Ö	1.2	0
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C= 3		2	1	0.5	38	6.4	- 2	5.1	$-\dot{\varepsilon}$
5-10		2	1	0.0	2.8		-12	-0.3	~ 45
120			<u>'</u>		6.60				
D-11		2	1	0.0	166	-0.1	5	-0.3	20
C-31		2	-	1.0	32	0.4	65	2.77	-32
3-20		2	1	<i>0.</i> €	49	-0.1	9	-0.3	3G
C-2		2	'	0.0	41	-0.1	1	-0.3	4
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SURVEY PACKAGE COVER SHEET

Package ID: 2000-01	Building: T881B								
Survey Area: Not Applicable	Survey Unit: Exterior								
Survey Unit Description: This trailer was acquired and installed at this site, northeast of Building 881, in June of 1983. The size of this trailer is approximately 12' X 60'.									
Building Information:									
Survey Type: Reconnaissance Level Characterization S	Survey Final Status Survey X								
Building Type: Type 1 X Type 2 □ Type 3 □	·								
Classification: Class 1 Class 2 Class 3 X Unk	nown 🗆								
Contaminants of Concern: Plutonium X Uranium X (Other 🗆								
Justification for Classification: This facility h contamination.	as no known history of radiolo	gical							
Special Support Requirements: Ladder, manlinstrumentation may be required for surveying upper walls and ceilings on the interior and upp	in overhead areas. Overhead a								
Special Safety Precautions: Access to overhead caution when working in overheads.	ad areas may require additiona	l controls. Use							
Isolation Controls:									
Level 1 □ Level 2 X N/A □									
Labeling Requirements: The location where f	ixed and removable surveys ar	e performed will							
be marked using a sticker or a marker and then									
Common De de la Landau de diama	, where the same of the same o								
Survey Package Implementation:									
RICK ROBERTS	YII	1128/08							
	liological Engineer Signature W	Date							
NOT APPLICABLE		N/A							
	FS Manager Signature	Date							
H. B. ESTABROOKS		4/34/18							
	SS Manager Signature	Date							
Survey Package Closure:									
RICK ROBERTS LAM 1/3/10	Z. M. 1770	Marijano.							
EXEC D. M. SAME	SS Radiological Engineer Signature	Date							
	/A	N/A							
REFS Manager Printed Name	FS Manager Signature	Date							
H.B. ESTABROOKS	XX maharan	8-3-00							
RESS Manager Printed Name	SS Manager Signature	Date							

08/3/00

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SURVEY PACKAGE TRACKING FORM

Package ID: 2000-01		Building: T881B				
Survey Area: Not Applica	able	Survey Unit: Exterior				
Initiator/ Date	Release Date	Validation Date	Closure Date			
Mill (131100	1121122	140 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	15354 B/E/00			
			1000			
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			Access to the second se			

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SURVEY PACKAGE CORRECTION/CHANGE HISTORY FORM

Package ID:	2000-01	Building: T881B		
Survey Area:	Not Applicable	Survey Unit: Exte	rior	· · · · · · · · · · · · · · · · · · ·
Change #	Description		Initiator/ Date	PRE
I	Portion sen everye p	and the state of t	dell sittee	11/2
	Perk-serios, harak	5-17/10	·	
2	Administration of the	Same and the second sec		
	Person laked		HA ME	A.E.
3	Revise Survey Man Res		1/1/ 2/23/00	1125
4	Perton roof survey / son		WW 3/1H00	
	Letter 1858-003-00 L.			an see
	(Su p. 84 of 242)			
5	2 samples & 1 ac sample reg	rived per	EDMY 4/1/00	d
	Characterization Package Sup	1 1	, 	
	Sumpling and Analysis of Ros	1.3		
	from Groups B&C for /sote			
6	Survey Map Res / Geletel		EBM 6/7/00	do
	Survey map had			
7	Roof survey / sampling perfor	med per	EDM 6/7/00	do
	Letter 1004-003-00 (p. 35 of			
8	corrected scan requirement	,	1004/6/20/50	
<u> </u>	0		i	

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INITIAL SURVEY PACKAGE DESIGN FORM

Package ID: 200	0-01	Building: T881B		Type: 1	
Survey Area: No	t Applicable	Survey Unit: Ext	erior	Area (m ²): 124	
	eription: This traile this trailer is appro-		installed at this site,	northeast of Buildi	ng 881, in June of
Survey Type:	1 AMaharan	. 10/- ///	Classification:		
RLC Survey □	FSS X		Class 1 Class	2 Class 3 X Un	known 🗆
Random/Uniform Surface Activity Measurements	Biased Surface Activity Measurements	Equipment Surface Activity Measurements	Media Samples	Volumetric Samples	Surface Activity Scans
28	0	0	#1 28 2	0	Biased
Building:		Type:	Co/114 MB 2# 4/1/00	Survey Area:	
Survey Unit:			Area (m²):		
Survey Unit Desc	eription:				
Survey Type:	A CONTRACTOR OF THE CONTRACTOR	-	Classification:		
RLC Survey □	FSS □		Class 1 Class:	2□ Class 3□ U	Jnknown □
Random/Uniform Surface Activity Measurements	Biased Surface Activity Measurements	Equipment Surface Activity Measurements	Media Samples	Volumetric Samples	Surface Activity Scans
Building:	The state of the s	Type:		Survey Area:	
Survey Unit:			Area (m²):		anne dans de comité de considera de la comité destination de la comité des la comité de la comité de la comité de la comité de la comité des la comité de la comité des la comité de la com
Survey Unit Desc	cription:	**************************************			
Survey Type:	To the second of		Classification:		
RLC Survey □	FSS □		Class 1 Class :	2 □ Class 3 □ U	Jnknown □
Random/Uniform Surface Activity Measurements	Biased Surface Activity Measurements	Equipment Surface Activity Measurements	Media Samples	Volumetric Samples	Surface Activity Scans
Building:		Type:		Survey Area:	
Survey Unit:	<u> → </u>		Area (m²):		The state of the s
Survey Unit Desc	cription:			, 5,5,6,6,6,6,6,6	
Survey Type:			Classification:	W. WARTER STORE OF STORE OF	The state of the s
RLC Survey □	FSS □		Class 1 □ Class	2 □ Class 3 □ U	Jnknown □
Random/Uniform Surface Activity Measurements	Biased Surface Activity Measurements	Equipment Surface Activity Measurements	Media Samples	Volumetric Samples	Surface Activity Scans

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SURVEY PACKAGE SURVEY/SAMPLING INSTRUCTIONS FORM

Package ID: 2000-01

Building: T881B

Survey Area: Not Applicable

Survey Unit: Exterior

Survey Unit Description: This trailer was acquired and installed at this site, northeast of Building 881, in June of 1983. The size of this trailer is approximately 12' X 60'.

	Minimum Survey/Sampling Measure	ment Kequirements
Measurement	Number and Type	Comments
Surface Activity	EXTERIOR WALLS/ROOF:	SEE NOTE 1
Measurements 1	28 surveys will be taken per the attached survey	SEE NOTE 2
	map.	SEE NOTE 3
		SEE NOTE 4
	QUALITY ASSURANCE SURVEYS	SEE NOTE 5
	QUILLE TRESCRICTOR	SEE NOTE 6
	EXTERIOR WALLS/ROOF:	
	5 surveys will be taken per direction from radiological engineering.	
		·

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SURVEY PACKAGE SURVEY/SAMPLING INSTRUCTIONS FORM (cont)

Package ID: 2000-01

Building: T881B

Survey Area: Not Applicable

Survey Unit: Exterior

Survey Unit Description: This trailer was acquired and installed at this site, northeast of Building 881, in June of 1983. The size of this trailer is approximately 12' X 60'.

Trace Scanning EXTERIOR WALLS/ROOF: Biased surface scans will be performed on the exterior where contamination would accumulate. This includes seams, cracks and corners. Both the exterior walls and roof will be scanned. Change #3 No informet than 10% of the total area will be scanned. QUALITY ASSURANCE SCAN SURVEYS EXTERIOR WALLS/ROOF: 5 percent of total number of scans or of total scan area will be taken per direction from radiological engineering.	ments
Biased surface scans will be performed on the exterior where contamination would accumulate. This includes seams, cracks and corners. Both the exterior walls and roof will be scanned. Change #3 No inform than 10% of the total area will be scanned. QUALITY ASSURANCE SCAN SURVEYS EXTERIOR WALLS/ROOF: 5 percent of total number of scans or of total scan area will be taken per direction from radiological engineering.	
exterior where contamination would accumulate. This includes seams, cracks and corners. Both the exterior walls and roof will be scanned. SEE NOTE 3 SEE NOTE 4 SEE NOTE 5 SEE NOTE 6 OUALITY ASSURANCE SCAN SURVEYS EXTERIOR WALLS/ROOF: 5 percent of total number of scans or of total scan area will be taken per direction from radiological engineering.	
This includes seams, cracks and corners. Both the exterior walls and roof will be scanned. SEE NOTE 3 SEE NOTE 4 SEE NOTE 5 SEE NOTE 5 SEE NOTE 5 SEE NOTE 6 OUALITY ASSURANCE SCAN SURVEYS EXTERIOR WALLS/ROOF: 5 percent of total number of scans or of total scan area will be taken per direction from radiological engineering.	
the exterior walls and roof will be scanned. SEE NOTE 4 SEE NOTE 5 No incre than 10% of the total area will be scanned. QUALITY ASSURANCE SCAN SURVEYS EXTERIOR WALLS/ROOF: 5 percent of total number of scans or of total scan area will be taken per direction from radiological engineering.	
Change #8 scanned. No more than 10% of the total area will be scanned. QUALITY ASSURANCE SCAN SURVEYS EXTERIOR WALLS/ROOF: 5 percent of total number of scans or of total scan area will be taken per direction from radiological engineering.	
Scanned. QUALITY ASSURANCE SCAN SURVEYS EXTERIOR WALLS/ROOF: 5 percent of total number of scans or of total scan area will be taken per direction from radiological engineering.	
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EXTERIOR WALLS/ROOF: 5 percent of total number of scans or of total scan area will be taken per direction from radiological engineering.	
scan area will be taken per direction from radiological engineering.	
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Change #5 kerry 41/00	
olumetric NONE	
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otopic Gamma NONE	
cans	

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SURVEY PACKAGE SURVEY/SAMPLING INSTRUCTIONS FORM (cont)

Package ID: 2000-01

Building: T881B

Survey Area: Not Applicable

Survey Unit: Exterior

Survey Unit Description: This trailer was acquired and installed at this site, northeast of Building 881, in June of 1983. The size of this trailer is approximately 12' X 60'.

Survey/Sampling Instructions

NOTE 1: Surveys of the area were established on a random basis and are delineated on page 14, RSFORMS-16.01-10, of the survey package. Survey points will be taken in the middle of the survey grid and will be cross-referenced to a common reference point in the trailer. These surveys will be taken in accordance with PRO-476-RSP-16.02, "Radiological Surveys of Surfaces and Structures", for the following:

- Total alpha contamination
- Total beta contamination
- Removable alpha contamination
- Removable beta contamination
- Biased scan measurements for alpha then beta/gamma contamination

For total alpha and total beta surveys, the LAB will be determined at each survey point by placing a piece of plywood over the probe face that is at least 0.5 inch thick and performing an alpha count and a beta count. The material background for both total alpha surveys and total beta surveys will be considered to be 0 dpm/100 cm².

Alpha scanning using the NE Electra for the DP6-BD and DP8A probes will be in accordance with Letter SJR-001-99, "Alpha Scan Rates for Building 779 Cluster Final Status Surveys," and Letter SJR-004-99, "Performance of Scan Surveys with the Bicron/NE DP8 Probe for Building 779 Cluster Final Status Surveys," respectively. Beta scanning using the NE Electra.

NOTE 2: Quality assurance prescribed surveys of the area will be taken in accordance with PRO-476-RSP-16.02, "Radiological Surveys of Surfaces and Structures" per the requirements in PRO-479-RSP-16.05, "Radiological Survey/Sample Quality Control," for the following:

- Direct alpha contamination
- Direct beta contamination
- Scan measurements for alpha then beta/gamma contamination

The location of quality assurance surveys will be delineated by radiological engineering after the initial surveys are performed. Quality assurance surveys will be performed by a different individual than performed the original survey.

NOTE 3: The RCT shall document the results for all surveys performed and maintain with the survey instructions package.

NOTE 4: All survey instruments will be performance checked both prior to and after performing surveys, and both performance checks will be documented. Contact Radiological Engineering for direction if an instrument fails the post performance check.

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SURVEY PACKAGE SURVEY/SAMPLING INSTRUCTIONS FORM (cont)

Package ID: 2000-01Building: T881BSurvey Area: Not ApplicableSurvey Unit: Exterior

Survey Unit Description: This trailer was acquired and installed at this site, northeast of Building 881, in June of 1983. The size of this trailer is approximately 12' X 60'.

Survey/Sampling Instructions

NOTE 5: The following MDA requirements are a goal for each survey instrument. The MDA shall not exceed the Investigation Levels outlined in NOTE 6.

- 10 dpm/100 cm² for removable alpha contamination
- 50 dpm/100 cm² for total alpha contamination
- 500 dpm/100 cm² for removable beta contamination
- 2500 dpm/100 cm² for total beta contamination
- 150 dpm/100 cm² for alpha scan
- 7500 dpm/100 cm² for beta scan

NOTE 6: If a survey result exceeds the following investigation levels, contact radiological engineering before proceeding:

- 15 dpm/100 cm² for removable alpha contamination
- 75 dpm/100 cm² for total alpha contamination
- 750 dpm/100 cm² for removable beta contamination
- 3750 dpm/100 cm² for total beta contamination
- 225 dpm/100 cm² for alpha scan
- 11250 dpm/100 cm² for beta scan

An investigation will be performed into the elevated results.

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									I A	GE 7 01	13
			TOTAL S	URFACE	ACTIV	ITY SURV	EY DATA I	FORM			
Survey A	rea: NOT AP	PLICAB	LE S	Survey Unit	t: EXTI	ERIOR		Build	ing: T881	В	******
Survey U of this tra	nit Description iler is approxim	1: This tra	iler was acc	quired and i	nstalled	at this site,	northeast of	Building 8	81, in June	of 1983.	The size
						nstrument	Data	······································			
Date	/ Time										
Inst.	No.: α					Probe No.	:				
Inst.	Νο.: β,γ		•		-	Probe No.:					
β,γ											
EHIC	lency (%): α		ργ	(cpn	<u>1/dpm)</u>	Mat. Area	Bkgd: α		βγ	(dpm	$/100 \text{ cm}^2$)
MDC Probe	c (dpm/100 cm ²) Correction Fac):	·	Bγ		00 cm ² /prob	e area)				
	Due Date:						ey Type:	Alpha	Beta	. <u>-</u>	
Sample Number	Location / Description		Counts	LAB B	- 1		Counts cpm)		Activity 100 cm ²)	Gross A Mat. Ar	Activity Activity - rea Bkgd. (00 cm ²)
		α	β,γ	α	β,γ	α	β,γ	α	β,γ	α	β,γ
			***************************************						ļ		
	 							 			
								 		 	
								 		 	
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							Gross Activi	ty	*****		
RCT Printed N	ame		Employee		vity - M	lat. Bkg = N			Date		
						J.g.					
RCT Technica	Supervisor Printed Na	me	Employee	#		RCT Technics	I Supervisor Signat	ire	Date		11. A. W.

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		REMOVABLE S	URFACE ACT	TIVITY DAT	ΓA SURVE	Y FORM		
Survey A APPLIC	rea: NOT ABLE	Survey Unit: EX	XTERIOR		Buildi	ng: T881B		
Survey U	nit Description: ler is approximate	This trailer was acquire	ed and installed	at this site, r	northeast of I	Building 881	, in June of 19	983. The size
or one or	ior is approximate	S S	mear Survey I	nstrument I	Data			
Count I	Date / Time:						s.	
inst. No	o.: ficiency (%): α		Probe N	lo.:				
MDC (dpm/100 cm ²):	ργ	βγ Inst. BK	.G: α	β	γ	(cpm)	
Cal. Du	e Date:	α	Survey	Type: Alp	ha	Beta-Gamr	na	
			Removable	-				
Swipe Number	Location / Description	Comments	Gross C		1	Counts pm		le Activity * 100 cm ²)
			α	βγ	α	βγ	α	βγ
		The state of the s						
· · · · · · · · · · · · · · · · · · ·		777						
		· · · · · · · · · · · · · · · · · · ·						
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		* (GROS	S Cts - Inst. Bk	(g) ÷ (Eff.) =	ACTIVITY	•		
RCT Printed N	ame	Employee #		RCT Signature	.,,,	····	Date	
RCT Technical	Supervisor Printed Name	Employee #		RCT Technical	Supervisor Signatu	re	Date	

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	SURF	FACE S	CANNI	NG DA	TA S	HEET	
Survey Area: NOT A	PPLICABLE	Survey I	Unit: EXTE	RIOR		Building: T881B	
Survey Unit Descripti of this trailer is approxi	on: This trailer w mately 12' X 60'.	as acquired	and installed	at this site, n	ortheast	of Building 881, in J	une of 1983. The size
			Scan Instru	nent Data			
Date / Time:							
mst. No.:		Probe	No.:				
Cal. Due Date:		Surve	ey Type:	Alpha	Beta-Gan	nma	
			Scan Surv	ey Data		* V-110 % (-)	
Sample	Locatio	n/				5	Scan
Number	Descript	1	C	omments			100 cm ²)
						α*	β,γ*
						<u> </u>	
							
							
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RCT Printed Name	Em	ployee #		RCT Signature			Date
RCT Technical Supervisor Printed	Name Em	ployee #		RCT Technical S	upervisor Sig	nature	Date

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^{*} If an elevated count rate or a sustained audible increase in the count rate is observed during the scan survey, OR the rate meter alarm sounds, THEN: Scan the immediate vicinity to determine the bounds of the elevated activity, and take a "Total Surface Activity" measurement and record. Mark the location of most elevated activity on the surface with a self-adhesive label or equivalent, ensuring that the marking is not applied directly over the point of interest. Further analysis is required by RS Supervision.

SURVEY PACKAGE CALCULATION WORKSHEET

Package ID: 2000-01	Building: T881B
Survey Area: Not Applicable	Survey Unit: Exterior
Survey Unit Description: This trail June of 1983. The size of this trailer is a	ler was acquired and installed at this site, northeast of Building 881, in opproximately 12' X 60'.
X Total Surface Activity	☐ Media Surface Activity
X Removable Surface Activity	□ Volumetric Surface Activity
Step 1: Calculate the relative shift Δ/σ_s . $\Delta/\sigma_s = (DCGL-LBGR)/\sigma_s$ $\Delta/\sigma_s = 1.0$	
where: A value of 1.0 was chosen since use of 1.0 maximizes the numbe	no survey data is available and Δ/σ_s may vary between 1.0 and 3.0. The r of surveys required.
	ulated relative shift and Table 7-1. Sign p is the estimated probability in the survey unit will be less than the $DCGL_w$ when the survey unit Sign p = 0.841345
	ntiles for $Z_{1-\alpha}$ and $Z_{1-\beta}$ and the selected decision error levels α and β . at RFETS are 0.05 and 0.05 respectively. This yields a $Z_{1-\alpha}$ and $Z_{1-\beta}$ cively.
Step 4: Calculate Number of Data Point	s (N) for Sign Test using the following equation:
$N = \frac{(Z_{1-\alpha} + Z_{1-\beta})^2}{4(Sign p - 0.5)^2} = 2$	3.22
Step 5: Increase the number of data poir possible data losses. 23.22*1.2	ats by 20% to ensure sufficient power of the tests and to allow for = 27.86
Conclusion:	
A total of 28 data points will be needed t	o satisfy MARSSIM statistical requirements.
RICK ROBERTS	William William
Project RE Printed Name	Project RE Signature Date
H.B. ESTABROOKS	All Butterful
RESS RE Printed Name	RESS RE Signature Date

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SURVEY PACKAGE SURVEY MAP

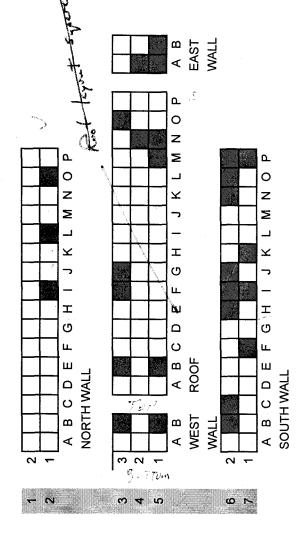
_	
Package ID: 2000-01	Building: T881B
Survey Area: Not Applicable	Survey Unit: Exterior
Survey Unit Description: This trailer was acquired at of 1983. The size of this trailer is approximately 12' X 6	nd installed at this site, northeast of Building 881, in June 0'.
Floor Area (m ²): 48	Total Area (m²): 124
SEE ATTACHED SURVEY MAP	
	-

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66/242 RO

Survey Unit: Exterior Package ID: 2000-01 Building: T881B





1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22

						1			
X-Coordinate Y-Coordinate		×	>		×	>		λX	>
11 2	-	21	5	11 11	1	7 21	7	6	3
	N	6	9	72	ω	9	22	16	9
Total Surface Area = 124 m ²	m	က	9	13	 თ	7	23	17	4
	4	17	5	4	2	5	24	22	Ŋ
10% Scan Surface Area = 13 m ²	3	51	4 15		2	2	25	2	က
	9	10	က	16	ဖ	7	26	8	9
= one square meter	^	16	C	7	15	2	7	10	9
	œ	15	9	18 16 7	9		28	7	9
= direct & swipe	O)	12	7	9	2	က			
	10 18 3 20	8	3		თ	7			

67/252 3-146

Page 14 of 15 Attachment to RSFORMS-18.01-10

SURVEY PACKAGE SURVEY MAP

Revision 1 - Roof

Survey Unit: Exterior

Pachage ID: 2000-01

Building: T881B

Septem John Sold States

1 2 3 4 5 6 7 8 9 40 11 12 13 14 15 16 17 18 = one square meter = direct & swipe ۵. O N N O ¥ Y-Coardinate I G ட Ш Δ X-Coordinate ပ 16 മ ⋖ က 2 **−** 0 0

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T881B Exterior Roof

Roof Surveys randomly chosen with original number of survey points (8 survey points)

674/242

MM 2/24/00

SURVEY PACKAGE VALIDATION CHECKLIST FORM

Package ID: 2000-01	Building: T881B					
Survey Area: Not Applicable	Survey Unit: Exterior					
Survey Type: Reconnaissance Level Characterization	Survey Type: Reconnaissance Level Characterization Survey □ Final Status Survey X					
All Documentation Reviewed for Completion	RCT Supervisor	PRE				
Scan Surveys	N	EDW				
Total Activity Surveys	grant .	EM				
Exposure Rate Surveys	N/A	N/A				
Removable Surveys	2/	EDM				
Media Samples	n/	DOW				
Volumetric Samples	N/A	N/A				
All Surveys and Samples Accounted For	RCT Supervisor	PRE				
Scan Surveys	p./	DOW				
Total Activity Surveys	· /	EDW				
Exposure Rate Surveys	N/A	N/A				
Removable Surveys	n/	joons				
Media Samples	p.	KOM				
Volumetric Samples	N/4	N/A				
Comments:						
	7.73					
Ron Windows		\$ 27.2-021				
RCT Supervisor Printed Name	CT Supervisor Signature	Date				
RICK ROBERTS OF THE SECOND MULTIPLE OF THE SECOND MULTIPLE OF THE SECOND	2 W/m form					
Project RE Printed Name H. B. ESTABROOKS.	roject RE Signature	Date				
RESS Manager Printed Name	ESS Manager Signature	8-3-00				
ALSS Manager Finned Manie	LE36 IVIAHAger Signature	Date				

7/3/20

Rev. 9/99

6F/242 RU 3-148 Survey Area:

N/A

Survey Unit:

Exterior

Building:

T881B

Survey Unit Description:

Roof and walls of Trailer T881B

8. POST-PERFORMANCE ACTIVITIES

8.1 Documentation

Reviewed the above mentioned Survey Package and associated measurement data in accordance with PRO-478RSP-16.04, Radiological Survey/Sample Data Analysis. The following items are noted:

- 1. Various notes are provided on the Survey Package DQA Checklist. See DQA Checklist.
- 2. Various notes are provided within the Survey Package. See Survey Package.
- 3. DQA Checklist should have location to input Survey Area, Survey Unit, Building and Survey Unit Description to ensure improved tracking.
- 4. Section 7.2.2 Accuracy, of RSP-16.04 should be rewritten to provide usable accuracy analysis process. Interoffice Memorandum REVISION TO PRO-478-RSP-16.04, RADIOLOGICAL SURVEY/SAMPLE DATA ANALYSIS EDM-001-00 was written and concurred on to provide a usable accuracy analysis process.
- 5. Spreadsheets provided to perform statistical calculations.
- 6. Several forms have been generated to replace forms from RSP-16.02. RSP-16.02 should be revised to reflect this change/improvement.
- 7. Total number of data points is very conservative. Using MARSSIM guidance it can be shown that significantly less data points are statistically acceptable. See spreadsheets.
- 8. Survey maps need improvement. Methodology employed is one that was used prior to RSP-16.01 approval. Recommend scale maps with grid overlays or CAD drawing in the future. See B779 Closure Project maps as examples.
- 9. See data sheets for corrected data.

Propured by: 5. N. my (6-1-0)

3-149

PRO-478-RSP-16.04 REVISION 0 PAGE 22

(09/30/99)

APPENDIX A

Page 1 of 1

DQA Checklist

§	Item	Performed By (Initials/Date)	Comments (number & attach)
7.1	Data Verification	Ram / 6/1/00	
7.1[1]	DQOs implemented as prescribed	100M / 6/1/00	
7.1[2]	All required supporting documents present	Em /6/1/00	
7.1[3]	Outliers / anomalies addressed	Ram / 6/1/00	
7.2	Data Validation	10m/6/1/00	
7.2.1	Survey/Sample Precision	Emu/6/1/00	
7.2.2	Survey Accuracy	Em /6/1/00	see spreadsheets
	Sample Accuracy	Dom / 6/1/00	
7.2.3	Data Representative of survey unit	Em /6/1/00	
7.2.4	Survey/Sample/Scan Completeness	EDM / 6/1/00	150% 150%
7.2.5	Data Comparable to related units	RDM / 6/1/00	yes Group B
7.3	DQA complete	Egm / 6/1/00	V
7.3[3]	Any measurement > DCGL _w ?	EDM / 6/1/00	yes, on roof
7.3[4]	Mean > DCGL _w	N/A	N/A
7.3.[5]	Any measurement > maximum DCGL	W/A	NA
7.4	Evaluation	NA	NA
7.4[1][D]	New survey package (if req'd)	NA	NA
7.4[1][E]	Radiological improvement report (if req'd)	N/A	N/A
7.4[2]	Verify documentation complete	NA	N/A
8.0	Peer review	d- 6/13/00	No. 12 .
	Package submitted to project management	140H BB-00	
9.1	Records to Records Center (copy to project files)	RAM /8-22-00	tests the DOA process when

NOTE: The DQA Flow Chart (Appendix B) is provided as aid to illustrate the DQA process when performing survey/sample data analysis activities describe in this procedure.



3-150

(dpm/100 cm²) Alpha Removable Activity

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Surv	
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			Survey Unit Description - Roof and walls of Trailer T881B
Survey Area - N/A	Survey Unit - Exterior	Building - T881B	Survey Unit Description
0.0	0.0	0.0	1.5

Removable Contamination Data Sheet DCGL_w 20 dpm/100 cm²

20 dpm/100 cm² 28

 2.0 dpm/100 cm^2 2.3 dpm/100 cm^2 Std Dev Mean

0.0

No measurement exceeds the DCGL_w

 1. 00 8. 8. 4. 4. 00 00 1. 1. 0. 00 00 1. 00 1. 00 00 1. 00 00 1. 00 00 1. 00 00 1. 00 00 1. 00 00 1. 00 00 1. 00 00 1. 00 00 1. 00 00 1. 00 00 1. 00 00 1. 00 00 1. 00 00 1. 00 00 1. 00 00 1. 00 00 1. 00 1. 00 00 1. 00 00 1. 00 00 1. 00 00 1. 00 00 1. 00 00 1. 00 00 1. 00 00 1. 00 00 1. 00 00 1. 00 00 1. 00

Removable Activity (dpm/100 cm²) Beta

Survey Area - N/A	Survey Unit - Exterior	Building - T881B
6.4	-2.4	5.6

Survey Unit Description - Roof and walls of Trailer T881B Removable Contamination Data Sheet

 $1000~\mathrm{dpm/100~cm}^2$ DCGLw -6.4 9.6 9.6

5.5 dpm/100 cm² 17.9 dpm/100 cm² Std Dev Mean

No measurement exceeds the DCGL_w

-18.4 9.6

2.5.4 4.6.4 4.6.4 5.6 9.6 9.6 9.6 11.6 1

Total Surface Activity (dpm/100 cm²) Alpha 9

andur / ma sor mic	(
တ	Survey Area - N/A	a-N/A				
တ	Survey Unit - Exterior	t - Exterior	_			
18	Building - T881B	881B				
9	Survey Unit	t Descripti	ion - Roof	and walls	Survey Unit Description - Roof and walls of Trailer T881B	31B
O	Total Surface Activity Data Sheet	ce Activity	/ Data She	et		
21	DCGLw	100	100 dpm/100 cm ²	:m²		
24	5	28				
15	Mean	29.2	29.2 dpm/100 cm ²	:m²		
18	Std Dev	37.7	37.7 dpm/100 cm ²	:m²		
0						
က	Three measurements exceeds the DCGL _w	urements	exceeds t	he DCGL _w		
12	Five measurements exceeds 75% of the the DCGL _w	rements e	xceeds 75	% of the th	ne DCGL _W	
18						
0	Precision					
21						
21	Location	ပ်	ပ်	ပ္ႏှ	$(C_{1+}C_2)/2$	RPD
21	F-1S	က	34.0	-31	18.5	-167.5676
21	K-1S	21	6.5	14.5	13.75	105.4545
0	B-1W	9	-3.3	9.3	1.35	688.8889
φ	L-1N	6	0.9	က	7.5	40
59	N1-1	6	27.9	-18.9	18.45	-102.439
0						
108.9	Precision (R	PD) is out	of specifica	ation due to	Precision (RPD) is out of specification due to low value survey	rvey
0	measurements	nts				
118.2						
93.1	Recalculated N	N D				
93.1						
105.2	$\Delta/\sigma_{\rm s} = ({\rm DCGL\text{-}LBGR})/\sigma_{\rm s}$	L-LBGR)/c	Σs			
	$\Delta/\sigma_{\rm s} = (100-50)/37.7$	50)/37.7				
			;			

 Δ/σ_s = 1.33 (default to 1.3) Sign p = 0.903199 N = 16.65 16.65*1.2 = 19.97 N = 20

Total Surface Activity (dpm/100 cm²) Beta

Survey Area - N/A Survey Unit - Exterior Building - T881B	Survey Unit Description - Roof and walls of Trailer T881B	DCGL _w 5000 dpm/100 cm ²	1 28	Mean 48.4 dpm/100 cm ²	Std Dev 111.2 dpm/100 cm ²
3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	S	žă	_	Ř	Š

No measurement exceeds the DCGL_w
No measurement exceeds 75% of the the DCGL_w

Precision

RPD	-532.567	-211.1888	-147.6882	-33.62218	-233.4728
$(C_{1+}C_2)/2$ F	-130.5	-286	-378.5	-288.5	-239
C_1 - C_2	695	604	559	97	558
ပ	-478	-588	-658	-337	-518
_	217	16	66-	-240	40
Location	F-1S	K-1S	B-1W	L-1N	N-1

Precision (RPD) is out of specification due to low value survey measurements

Recalculated N

$\Delta/\sigma_{\rm s} = ({\rm DCGL\text{-}LBGR})/\sigma_{\rm s}$	$\Delta/\sigma_{\rm s} = (5000-2500)/111.2$	$\Delta/\sigma_s = 22.48$ (default to 3)	Sign $p = 0.998650$	N = 10.88	10.88*1.2 = 13.05	N = 14

Survey Area: NA	Survey Unit: ATERIOR	Building: TEERS
Survey Unit Descripti	OR LOS OF TRAIL	ELE TEBIS

SURVEY SIGNATURE SHEET

Removable /Total Surface Activity Performed By

MAKK LAWSUN		11111	2.14.00
RCT Printed Name		RCT Signature	Date
R. Keney		illy	21400
RCT Printed Name		RCT Signature	Date
Parrick Chritun		Pull	2-24.00
RCT Printed Name		RCT Signature	Date
A. Christone Vice		Malle	2-24-00
RCT Printed Name		RCT Signature	Date
PAPRICK CHITTUM		1. thill	(20 35·5
RCT Printed Name		, RCT Signature	Date
		1 M	
RCT Printed Name	Employee #	, RCT Signature	Date
The state of the s	en de de commençante	A	
RCT Printed Name	Employee #	RCT Signature	Date

Quality Control Measurements Performed By

	al Aculus	3-4-00
	/ RCT Signature	Date
		and the second s
Employee #	RCT Signature	Date
Employee #	RCT Signature	Date
Linployee "	- James House	Date
Marie Ma		
Employee #	RCT Signature	Date
Employee #	RCT Signature	Date
		Employee # RCT Signature Employee # RCT Signature

Survey Reviewed By

and the second	 	
Kon Warster		C.S.
RCT Foreman Printed Name	RCT Foreman Signature	Date

145

Survey Area: NA Survey Unit: GREGOL Building: TOOIS

Survey Unit Description

Survey Unit Description

INSTRUMENT DATA SHEET

Removable Contamination Survey Instrument Data

EBERUL	Cherrie				
8C-4	5164				Market
1	2	3	4	5	6
BC961	Ciel			1	
627.00	6-21-00				
2.14.00	2.14.00		and the second	4	
37-6	0.0		and the second s		
25	33		and the second		
67.9	4.1	and the second s			
	8C-4 1 BCG61 6-27-00 2-14-00 37-6 75	8C-4 5AC-4 1 2 8C961 961 627-00 621-00 2-14-00 2-14-00 37-6 0.0 75 33	8C-4 5.C 4 1 2 3 BC961 961 627.00 621.00 2.14.00 2.14.00 37.6 0.0 75 33	8C-4 5AC 4 1 2 3 4 BC961 961 627-00 621-00 2-14-00 2-14-00 37-6 0.0	8C-4 5AC-4 3 4 5 BC961 961 5 627-00 621-00 7 2-14-00 2-14-00 7 37-6 0.0 7

Total Surface Activity Instrument Data

nufactur	rer	N.E.	Tech.	N.E.	Tech.	N.E.	Tech.	Ne	grand grand grand grand				\mathbb{Z}
Model		Ele	ctra	Ele	ectra	Ele	ectra	ec	T127				
Inst. ID#		7	7		8		9	1	0	1	1	12	
Serial # / P	robe #	2378	1956	1310	1158	2385	1931	2595	1951				
Cal. Due D	ate	5.3	(C3)	4.7	20.cc	61	1.00	6.1	GC+1-		λ	A	
Survey Dat	te	2.1	4·00	2,	14.00	7.2	4-00	3.1	4.00		7	,	
Alpha Bkg 90-sec count time	Beta Bkg 90-sec count time	2.0	485	3.3	476	20	513	5.5	521				
Alpha Eff (%)	Beta Eff (%)	22.35	30.36	21.92	29.47	21.49	29,94	Z Z	21.49	34100			
Alpha MDA 90-sec count time	Beta MDA 90-sec count time	32.1	æl	39.7	287	4	7013	35-84	298 444				

Page 2 of 11

Survey Area: NA Survey Unit: GARGO Building: 78818

Survey Unit Description

TRACE TESIS

SAMPLE COLATIONS BELOW WERE TAKEN FROM THE 1º (QUILEUISED) HAVE

Total Surface Activity Data Sheet Sample RCT Inst ID# **Gross Count** Survey count time LAB Net counts **Net Activity** ID# location (sec) (cpm) (dpm/100cm2) (gcpm) (cpm) β β α β β α α α α α β エール -7 90 90 .7 33 0 40 13 349 361 12 2 C 90 90 - 73 1 7 L-IN 317 2.0 2.0 340 40 Ci. -240 90 90 -7 0-12 60 2.7 345 345 0 4.0 90 90 3-1W .7 00 13 30 311 287 .00 20 90 90 B36 7 38 i 2.0 317 6 13 200 4.0 90 90 A-16 7 2.7 3-19 73 360 11 21 36 4.6 90 90 :---) A-JE 7 24 248 2.7 80 327 5.5 -21 -69 90 90 7 3.3 24 3-16 7.7 377 7 6.0 401 15 79 90 90 ٠) 379 325 7 4.0 12 18 40 36.7 6.0 7.0 90 90 C-25 ~7 -7 370 2.7 327 0.0 -43 2.7 5H-90 F-15 7 90 2.0 383 3 -7 1.3 317 0.7 217 66 90 90 1.3 H-25 310 370 1) 4.0 2.7 60 198 90 90 I-15 2-2 7 2.0 6.0 367 4.0 18 72 90 90 I-2> 7 2.0 377 -14 0 -46 2.0 391 0.0 90 90 J-25 -7 47 21 53 1.3 6.0 344 16 228 90 90 16 K-15 2.7 7.3 349 4.6 5 21 344 90 90 25-25 7 47 60 2.0 342 6.7 362 20 21 90 90 3,4 21 025 376 2.0 6.7 4.7 22 72 90 90 8 P-15 310 2.0 362 2.0 0.0 0 2(90 90 - 6 7-25 7 7 -1.3 62 1.3 257 349 O.O 204 90 90 9 BIR 9 4.0 400 16:7 467 12.7 67 59.0 204 90 90 3-3K 9 9 440 0.0 0 11.3 0 11.3 0.0 440 9 90 90 1997 Sept 877. 54 M-IR 4 415 23.4 180 1.5 24.7 469 90 90 N-12 9 22.7 267 0.0 37 0.03799 124 4 477 440 90 90 N-212 30.7 1625 118.2 18 60 4 9 5.5 428 446 90 90 9 D-32 26.0 43.1 -43 9 480 467 20.0 -136.0 90 90 93.1 F-32 2444 80 47 471 495 20.0 24 9 9 G3R 9 90 90 4.7 443 213 501 72.6 53 105.2 194 4 F-15QC 90 90 6.7 573 7.3 34.0 516 14.0 もはら 10 10 -145 K-15QC 90 90 2019 9.3 380 10.7 1.4 -174 599 555 10 (0 6.5 B-IWQC 90 90 -197 10 8.0 7.3 409 0.7 -3.3 -417 10 (c)C/c L-IN QC 90 90 -10 60 399 41.3 C 4.7 +6.0 I- INOC 90 90 10 27.9 -72T 10 6:7 522. 12.7 347 6.0

Not easurements are to be collected by a different technician than the original survey. Mark the QC location number in the "Sample Location" column. Material background is assumed to be zero unless otherwise noted. "LAB" ~ local area background.

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14

1

Survey Area: NIA Survey Unit: EXTERIOR Building: T8818
Survey Unit Description Rear TRAILER T8818

BELOW SAMPLE LOCATIONS WELL TAKEN FROM THE 1ST (MUKENSON) MAP.

	RCT ID#	inst #	t ID		Gross Counts Net Co			Removable Activity (dpm/100cm2)	
- 1		α	β	α	β	α	β	α	β
E-IN		2		0	36		1.6	0	-6.4
IN		2	i	- ŏ	57	<u>0</u>	06	٥	-2.4
0-1N		2	-	0		0	1.7	Ö	5.6
13-1W		2	,	0.5	39	0.5	-6.6	1.5	-26.4
3.3W		2	1	0.5	54	0.5	-5.6	1.5	-14.4
1-1E		2		0.5	36	0.5	-1.6	1.5	-6.4
1-25		2	i	0	40	<u> </u>	2.4	0	9.6
3-16		2	1	Ö	40	ँ	2.4	٥	4.6
3-25		2	i	0.5	\$ 5	0.5	-4.6	1.5	-13.4
25		2	1	0	See Early	0	2.4	- O	9.6
-15		2	1	0.5	5 7	0.5	-0.6	1.5	-2.4
4-25		2	١	2.0	5 l	2.0	-6.6	6.0	-76.4
C-15		2	ì	1.0	څ کړ	1.0	-1.6	٤.٥	-6.4
E-25		2	ı	1.0	45	1.0	7.4	5.0	29.6
5-25		2	1	1.5	59	1.5	1.4	4.5	5.4
4-15		2	1	0.5	40	0.5	2.4	1.5	4.6
V-25		2	1	2.0	37	2.0	-0.6	6.0	-2.4
2-25		2	١	3.0	16.	5.0	4.4	9.0	17.6
7-15		2)	0.5	40	٥.٤	2.4	1.5	94
B-112		2	Ţ	0	40.5		2.9	0	11.6
13 31C		2	١	05	34	0.≼	-5.40	1.5	-14.4
E-3R		2	١	0.5	40.5	ن د · ن	2.4	1.5	11.6
3-54		2	1	O-	39	O	1.4	0	5.6
N-112		2	1	0	42_	Ö	4.4	Ò	17-6
J-1K		2	1	0.5	405	05	2.4	1.5	11-4
U-2R		2	l	1-5	46	1.5	8.7	4.5	33.6
0 312		2	į	1-5	46	1.5	8.4	4.5	33.4
PZS		2	1	0	50	0	12.4	0	44.6
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		-	-	and the second s	e. Seate and the				-
	-			The second secon					

Page 4 of 11

Survey	Area:	NIA		Survey Un	it: Ex16x	mi Okan	E	Building: てどれる	à
Survey	Unit Des	cription:	2.00	Whis of	1 Russ		TESIR		
_	Electra DP-6 Beta				I RANGE TESTS Electra DP-6 Alpha				
Loc. ID#	RCT ID#	Inst. ID#	Elevated Audible observed? "Y" or "N"	60-sec PAT (dpm/100cm2)	RCT ID#	Inst. ID#	4-sec Audible observed? "Y" or "N"	30-sec Static (gcpm)	90-sec PA' (dpm/100cm
正似		ع	<i>></i>			ಕ	4	12	
エールと		8	N			8	Y	16	
I-123		E	ر کر ا			8	Υ	4	
I-1214		<u>ප</u>	N	4		· &	Υ,	20	
6-121		8	N			8	Y	4	1 /
0-1501		B	N	***		8	Υ,	14	N
01.2Z		\mathcal{E}		State of the state		<i>E</i> ,	7	12	1.1.1.1
BIEI		7	N	18		.7	1	10	1 /A
BIW		7	N	***************************************		7	Ň	NU.	
F-151		-7	N	The state of the s		7	Y	10	
F-152		7	N	. /		7	1	\mathcal{E}	
F-153		7	N			7	Ý	6	-
K-151		7	λ			7	1	. 4	
# P-15		7	N			1	N	NA	1 - 1
Q.		UTECK	5	The second of th		t fam of skipters the property of the skipters of	and a first the state of the st	and the state of t	and the second s
B-161		10	N			10	Y	20	
BIEZ		10	N	1.1/		C	- 1	10	LN/
BIE3		10	N			(C)	Y	4	1 /A
K-151		10	N			C	Y	12	
K-152	•	10	N	<u> </u>		10	Y	20	/
							4.	- Control of the Cont	A STATE OF THE PARTY OF THE PAR
						1	The state of the s	and the second s	
						1			
				The second secon		YT_			
		The second second	And the second s						
	-								

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Survey Area:	NA	Survey Unit:	und.	Building:	3 i Es
Survey Unit D	Description:	1	. د البيعيد		
					ΑΛ
RCT Initials/I		CT Initials/Date:			
	al Survey NE Electra Scan & Inv				
Leg	end: "R"- Roof, "W" - We	est Wall, "S" – South " "C" –Ceiling, "F"		Vall, "N" – Nort	h Wâll
		8,			
	I IN		L-	14	
	(T)				
• .					
	2			(i)	
	3 (4)				
*	1				
		· · · · · · · · · · · · · · · · · · ·			
	01.1		5 -1	gaziri Bezin	
	0-12				
	. :				
	*				
	(V.	6		
	(2)				
*					

Results/Comments:

Electra alpha scans were performed at the locations detailed on the survey map(s). All required accessible areas were scanned. All initial scan results were <225 dpm/100cm², unless noted on the survey form.

Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the survey form.

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Rev. 020900

c:\Final Survey\DPElectraSurvey020900.doc

* Designates corner closest to A-1 point of reference

Survey Area:	NA	Survey Unit:	Stol	Building:	 1B		
Survey Unit Descri	ription: Sact of W		NER TBB				
RCT Initials/Date: RCT Initials/Date: N/A RCT Initials/Date: N/A							
Refer to the Final St	urvey NE Electra Scan & In	vestigation Survey Form f	or instrumentation, s				
Legend	: "R"- Roof, "W" - W	est Wall, "S" – South "C" –Ceiling, "F	Wall, "E" – East " - Floor	Wall, "N" - North	Wall		
	FIS		K.	-15			
					-		
	0						
(2)							
*	T	*					
			•				
					,		
			A		•		
				A			
		/	<i>.</i>				
* Designates cor	ner closest to A-1 point	of reference					

Results/Comments:

Electra alpha scans were performed at the locations detailed on the survey map(s). All required accessible areas were scanned. All initial scan results were <225 dpm/100cm², unless noted on the survey form.

Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the survey form.

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Page _____ of _____ 11

Rev. 020900

Survey Area:		Survey Unit:	Ruilding					
	NA	EXTERIOR.	Building: 18818					
Survey Unit D	Description:	hows or TRANCE.						
RCT Initials/I	RCT Initials/Date: NA RCT Initials/Date: NA							
			tation, surveyor & approval information.					
Leg	Legend: "R"-Roof, "W" - West Wall, "S" - South Wall, "E" - East Wall, "N" - North Wall "C" - Ceiling, "F" - Floor							
	2							
		2	3					
*	K-1.5	*	B-1.E					
	N		W .					
	corner closest to A-1 point							

Results/Comments:
Electra alpha scans were performed at the locations detailed on the survey map(s). All required accessible areas were scanned. All initial scan results were <225 dpm/100cm², unless noted on the survey form.

Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the survey form.

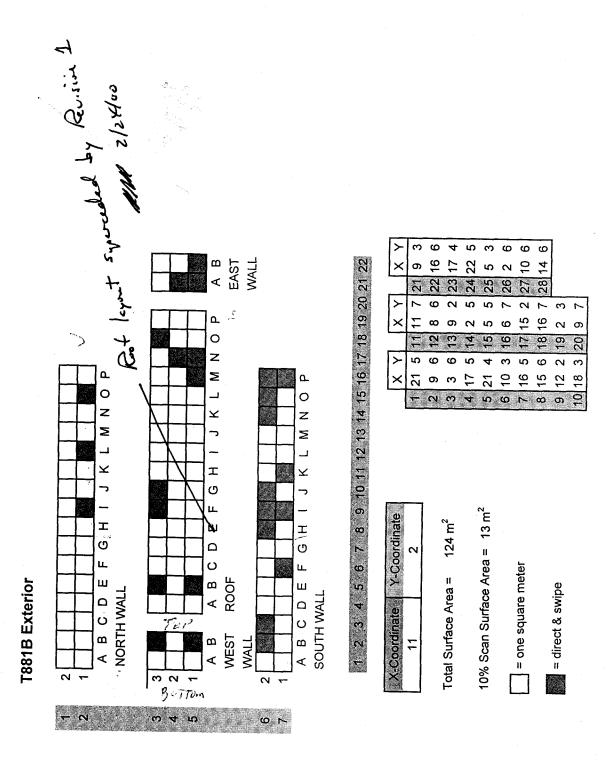
Rev. 020900

c:\Final Survey\DPElectraSurvey020900.doc

Attachment to RSFORMS-16.01-10 Page 14 of 15

SURVEY PACKAGE SURVEY MAP

Package ID: 2000-01 Building: T881B Survey Unit: Exterior



Page 14 of 15 Attachment to RSFORMS-'10.01-10

SURVEY PACKAGE SURVEY MAP Revision 1 - Roof

Survey Unit: Exterior Package ID: 2000-01 Building: T881B

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T881B Exterior Roof

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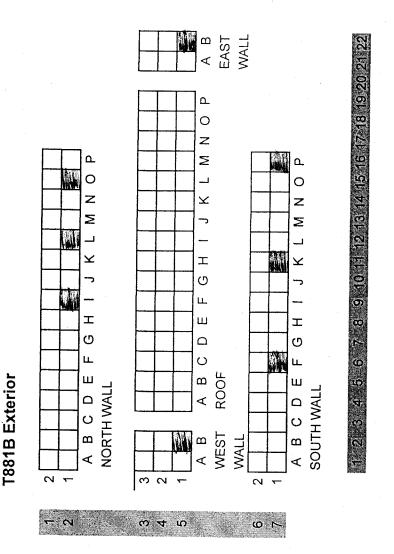
7

number of survey points (8 survey points)

Roof Surveys randomly chosen with original

679/242

Package ID: 2000-01 Building: T881B Survey Unit: Exterior SCAL (SCATIONS:



IRST OF SULL COATIONS ON A SERVENTE MAP.

and a second

Survey Area: NA	Survey Unit: Conserved Building:	
Survey Unit Description	Escue of Alasa Roof	

SURVEY SIGNATURE SHEET

Removable /Total Surface Activity Performed By

M. LAWSON		Mr. Characan	3-3-20
RCT Printed Name		RCT Signature	Date
4. PARKET		arah	3-5.00
RCT Printed Name		O RCT Signature	Date
			and a state of the
RCT Printed Name	Employee #	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date
		A	,
RCT Printed Name	Employee #	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date

Quality Control Measurements Performed By

		the state of the s
Employee #	RCT Signature	Date
	and the second s	
Employee #	RCT Signature	Date
And the second second	Z .	
Employee #	RCT Signature	Date
Employee #	RCT Signature	Date
Employee #	RCT Signature	Date
	Employee # Employee #	Employee # RCT Signature Employee # RCT Signature Employee # RCT Signature

Survey Reviewed By

Row Worker		2-4-60
RCT Foreman Printed Name	RCT Foreman Signature	Date

Page 1 of 6 2-166

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Survey Area: NA	Survey Unit	Building:	729/3
Survey Unit Descriptio	n		. 20 12 .

INSTRUMENT DATA SHEET

Removable Contamination Survey Instrument Data

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					and the second second
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and the live and the second second	·				

Total Surface Activity Instrument Data

anufacturer		N.E. Tech. N.E. Tech.		Tech.	N.E. Tech.							A Committee of the Party of the	
Model		Ele	ctra	Ele	ectra	Ele	ctra		-			S. market and	
Inst. ID#		1	7		8		9	1	0	- 1	1	1	2
Serial # / P	robe #	2378	1456	7395	(23)				4.	and the second	and the second		
Cal. Due Date		5.3	-3-00 5-,4-00				4		and the same of th				
Survey Dat	е	3.3.	30	- T	6.00				one too see	L.			
Alpha Bkg 90-sec	Beta Bkg 90-sec com count time	7.0	13 m 13	4.0	421			A Company of the State of the S					
Alpha Eff (%)	Beta Eff (%)	22.35	4.0 SV	21.49	29.94		And the second second						
Alpha MDA 90-sec Ipm count time	Beta MDA 90-sec Apm count time	335	338.7		266	A COMPANY OF THE SECOND							,

Survey	Area:	NA		Survey U		T CR. 01	9	Building:				
Survey	Unit Des	scription:						8.5	-5			
	Electra DP-6 Beta				Electra DP-6 Alpha							
Loc. ID#	RCT ID#	Inst. ID#	Elevated Audible observed? "Y" or "N"	60-sec PAT (dpm/100cm2)	RCT ID#	Inst. ID#	4-sec Audible observed? "Y" or "N"	30-sec Static (gcpm)	90-sec PAT (dpm/100cm²)			
N-IRA	-	-		F		1	MÅ	NÅ	23.7			
N-IRB	_	1	4 Proceedings			##)		. V Eng. / Spring	98.3			
N-IRC	_	1	E CIRCOR PETITIES	12.64		i	and the second	offs a second of	45.5			
N-RD	_	1	and the same	·		F**	3	A control of the cont	4.02.6			
3-12E		1				-			95.3			
N-IRE	_	1	eringanic peril						San			
N-12G	_	1										
NIRH		7		}					93.4			
N-18.		1	,				Ì	1				
B-2w1	_	7	753	614		*	>		NÅ.			
L-20)		7	A)	214			· M	NA	ř!Å			
F.25'1		8	N	NA		8	Y	8	NA.			
K.25.1	-	8	7	NA		8	У	12	NA			
0-2N1	-	8	N	NA		8	У	10	NA			
I-IN 1 I-IN 2 I-IN.3	_	8	. N	NA		8	У	16	NA.			
LW.2	_	8	N	NA		8	У	6	NA			
I.2N.3	_	8	\sim	NA		9	У	4	NA			
I.2N.4	_	8	N	NA		8	Y	6	NA			
A .3.E	-	8	\sim	NA		8	N	NA	NA			
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and the second s	ARION LINE						,					

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3-168

irvey Area:	Survey Unit:	Building:	7883
nrvey Unit Description:	georges 91		
CT Initials/Date:	RCT Initials/Date:	RCT Initia	als/Date:
efer to the Final Survey NE Electra Scan &			
Legend: "R"-Roof, "W"-	West Wall, "S" - South Wa	ll, "E" – East Wall, "N"	
	"C" -Ceiling, "F" - F	loor	
The state of the s		11-12	
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The state of the s			
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Results/Comments:

Electra alpha scans were performed at the locations detailed on the survey map(s). All required accessible areas were scanned. All initial scan results were <225 dpm/100cm², unless noted on the survey form.

Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the survey form.

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* Designates corner closest to A-1 point of reference

Survey Area: NA	Survey Unit: EXTERIOR	Building: T881B
Survey Unit Description:	AUS, ROOF	
ΛΛΛ -	RCT Initials/Date:	RCT Initials/Date:
Refer to the Final Survey NE Electra Scan & In		
Legend: "R"-Roof, "W"-V	Vest Wall, "S" - South Wall, "E" - Eas "C" -Ceiling, "F" - Floor	t Wall, "N" – North Wall
* F-Z-S	* K-	2-5
		3
X 0-2-N	X I-	2-N
* Designates corner closest to A-1 point	t of reference	

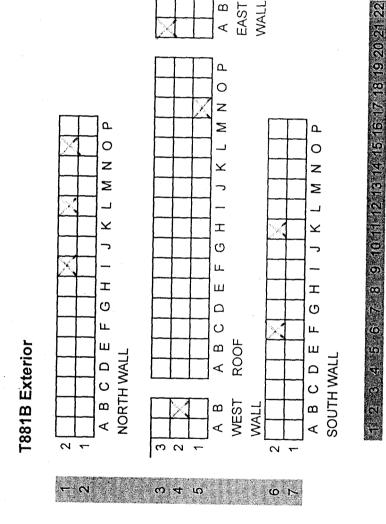
Results/Comments:

Electra alpha scans were performed at the locations detailed on the survey map(s). All required accessible areas were scanned. All initial scan results were <225 dpm/100cm², unless noted on the survey form.

Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the survey form.



Survey Unit: Exterior Package ID: 2000-01 Building: T881B



A B EAST WALL

3-171

Survey Area:	Survey Unit: All Prints Building:	8818 P
Survey Unit Description	ROOK SAMOLE LOCATION	

SURVEY SIGNATURE SHEET Removable /Total Surface Activity Performed By RCT 3-28-00 MARK LAWS FOR Date TOM BINGHAM RCT Printed Name 3-28-00/ Date RCT Signature 3-18.00 RCT Printed Name **RCT Signature** Employee\# RCT Printed Name RCT Signature Date **RCT Printed Name** Employee # RCT Signature Date RCT Printed Name Employee # RCT Signature Date RCT Printed Name Employee # RCT Signature Date

Quality Control Measurements Performed By

NOT rinible Hante	Employee #	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date

Survey Reviewed By

5 GEENANT	lemus	3-29-00
RCT Foreman Printed Name	RCT Foreman Signature	Date

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\\		
Survey Area:	Survey Unit: Exterior	Building: T881B
Survey Unit Description:	of Sample LOCATION	
	RCT Initials/Date: NA	RCT Initials/Date: NA
Refer to the Final Survey NE Electra Scan & I		
	Vest Wall, "S" – South Wall, "E" – Ea	
	"C" -Ceiling, "F" - Floor	
M-IR	G	· 3R
⊗ ⊗	&	
∅ ⊗		
	N	
& SAMPLE CUTOUT		

* Designates corner closest to A-1 point of reference Results/Comments:

Electra alpha scans were performed at the locations detailed on the survey map(s). All required accessible areas were scanned. All initial scan results were <225 dpm/100cm², unless noted on the survey form.

Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the survey form.



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Survey Area: NA	Survey Unit:	Exterior	Building: T881B	
Survey Unit Descript	tion			
	Roof Sample Locat	ion		

INSTRUMENT DATA SHEET

Removable Contamination Survey Instrument Data

Manufacturer	EBERLINE	EBERLINE	EBERLINE	EBERLINE		
Model	SAC4	BC4	SAC4	BC4		
Inst. ID #	1	2	3	4	5	/6
Serial #	823	966	1171	868		
Cal. Due Date	9/6/00	9/15/00	7/11/00	7/12/00		
Analysis Date	3/28/00	3/28/00	3/28/00	3/28/00	M	
Instrument Bkg.cpm 10-min count time	0.5	42.9	0.3	35.2	/ 4	
Instrument Eff (%)	33	25	33	25		
Instrument MDA dpm 2-min count time	9.6	72.2	8.3	65.9	#DIV/0!	#DIV/0!

Total Surface Activity Instrument Data

Manufact	urer	N.E.	Tech.	N.E.	Tech.	N.E.	Tech.	N.E.	Tech.	,			
Model		Elec	ctra	Elec	ctra	Elec	ctra	Ele	ctra				
Inst. ID #		•	7	S	3	į (9	1	0	1	1	1	2
Serial # / I	Probe #	2374	1919	2376	1921								
Cal. Due E	ate	9/8	/00	8/2	3/00					,./			
Survey Da	ite	3/2	7/00	3/2	7/00				A property of				
Alpha Bkg 90-sec opm count time		4	433	1.3	384								
Alpha Eff (%)	Beta Eff (%)	20.85	29.89	20.46	29.7								
	Beta MDA 90-sec المجرة count time	45.1	271	30.0	257	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!



Survey Area: NA Survey Unit: EXTERIOR Building: 881B

Survey Unit Description

ROOF SAMPLE LOCATIONS

			Tot	al Su	ırfac	e Ac	ctivi	ty D	ata	Shee			
Sample location	RCT ID	Inst	ID#	Survey co		Gross (gcp		LA (cp		Net co		Net Ad (dpm/1	
		α	β	α	β	α	β	α	β	α	β	α	β
PRE				90	90					0.0	0	0.0	0
M-1R		7	7	90	90	32.0	457	4.0	433	28.0	24	134.3	80
POST				90	90					0.0	0	0.0	0
M-1R		7	7	90	90	28.0	565	0.0	495	28.0	70	134.3	234
PRE				90	90					0.0	_ 0	0.0	0
M-1RQC		8	8	90	90	15.7	457	8.7	469	7.0	-12	34.2	-40
POST				90	90					0.0	0	0.0	0
M-1R QC		8	8	90	90	12.7	476	2.7	446	10.0	30	48.9	101
PRE				90	90					0.0	0	0.0	0
G-3R		7	7	90	90	17.3	461	11.3	425	6.0	36	28.8	120
POST				90	90					0.0	0	0.0	0
G-3R		7	7	90	90	10.0	461	10.0	395	0.0	66	0.0	221
				90	90					0.0	0	0.0	0
				90	90					0.0	0	0.0	0
	\vdash			90	90					0.0	0	0.0	0
				90	90					0.0	0	0.0	0
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				90	90					0.0	0	0.0	0
	\vdash			90	90		1			0.0	0	0.0	0
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	+			90	90	· · · · · · · · · · · · · · · · · · ·				0.0	0	0.0	0
QC			1	90	90					0.0	0	0.0	0
QC			1	90	90					0.0	0	0.0	0
QC	_			90	90					0.0	0	0.0	0
90				90	90					0.0	0	0.0	0
								-					

Note: QC measurements are to be collected by a different technician than the original survey. Mark the QC location number in the "Sample Location" column. Material background is assumed to be zero unless otherwise noted. "LAB" ~ local area background.

Page # of 5

QC

Survey Area: NA Survey Unit: EXTERIOR Building: 881B
Survey Unit Description ROOF SAMPLE LOCATIONS

		Re	emo	vable C	ontamii	nation	Data Sh	neet	
Sample location	RCT ID	Ins:	t ID	Gross Counts	(gcpm)		Counts pm)	Removeat (dpm/1	ole Activity 00cm2)
		α	β	α	β	α	β	α	β
PRE						0	0	0.0	0
M-1R		1	2	0.5	42	0	-0.9	0.0	-4
POST						0	0	0.0	0
M-1R		3	4	0.5	37.5	0.2	2.3	0.6	9
PRE						0	0	0.0	0
M-1RQC		1	2	1	43.5	0.5	0.6	1.5	2
POST						0	0	0.0	0
M-1R QC		3	4	0.5	41.5	0.2	6.3	0.6	25
PRE						0	0	0.0	0
G-3R		1	2	0.5	47	0	4.1	0.0	16
POST						0	0	0.0	0
G-3R		3	4	1	39	0.7	3.8	2.1	15
						0	0	0.0	0
						0	0	0.0	9
						0	0	0.0	0
						0	0	0.0	0
						0	0	0.0	0
						0	0	6.0	0
						00	0	0.0	0
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						0	8	0.0	0
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SURVEY PACKAGE COVER SHEET

Package ID: 2000-01	Building: T883A	
Survey Area: Not Applicable	Survey Unit: Interior	
Survey Unit Description: This trailer was consumand Eighth Street, directly east of Building 883, 28' X 70' and it is assembled from 2 trailer units	in1983. The size of this traile	r is approximately
Building Information:		
Survey Type: Reconnaissance Level Characterization S	urvey Final Status Survey X	
Building Type: Type 1 X Type 2 □ Type 3 □		
Classification: Class 1 Class 2 Class 3 X Unki	nown 🗆	
Contaminants of Concern: Plutonium X Uranium X C	Other 🗆	
Justification for Classification: This facility has contamination.	as no known history of radiolo	ogical
Special Support Requirements: Ladder, manlinstrumentation may be required for surveying in upper walls and ceilings on the interior and upper	n overhead areas. Overhead a	
Special Safety Precautions: Access to overhead caution when working in overheads.	ad areas may require additiona	al controls. Use
Isolation Controls:		
Level 1 🗖 Level 2 X N/A 🗖		
Labeling Requirements: The location where fi be marked using a sticker or a marker and then		- "
Survey Package Implementation:	0.4	
RICK ROBERTS		
Radiological Engineer Printed Name	ological Engineer Signature	Date
NOT APPLICABLE	A	N/A
REFS Manager Printed Name	S Manager Signature	Date
H. B. ESTABROOKS		1 2 m/ 1/2/2
RESS Manager Printed Name	S Manager Signature	Date
Survey Package Closure:		
RICK ROBERTS ON THE EZIC D. MKNUE		99 (18, 1819)
	S Radiological Engineer Signature	Date
NOT APPLICABLE	'A	N/A
	S Manager Signature	Date
H.B. ESTABROOKS	568 Bahaffer	8-3-00
RESS Manager Printed Name	Sy Manager Signature	Date

18/3/0°

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SURVEY PACKAGE TRACKING FORM

Package ID: 2000-01	2	Building: T883A Survey Unit: Interior					
Survey Area: Not Applic	able						
Initiator/ Date	Release Date	Validation Date	Closure Date				
ANK 113110	1120636		150mg 8/3/30				
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	POTENCIA MARIA DE ARRAGO.						
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SURVEY PACKAGE CORRECTION/CHANGE HISTORY FORM

Package ID:	2000-01	Building: T883A	10 W 1	AVENT LES TOURS
Survey Area:	Not Applicable	Survey Unit: Inte	rior	Switch 19
Change #	Description	JI	Initiator/ Date	PRE
1	the track of the second		. 1888 A.C.	1902
	Parano Literal			1
2-	Demander de l'age que		1 1 1 2 2 m	AUL
	Perennend South		·	
3			- PAR Should	
4	Corrected Scan requirement	,	EMY 6-20-00	
				<u> </u>
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INITIAL SURVEY PACKAGE DESIGN FORM

Package ID: 200	0-01	Building: T883A		Type: 1	
Survey Area: No	t Applicable	Survey Unit: Into	erior	Area (m²): 596	C CANADA
Eighth Street, o	lirectly east of B	uilding 883, in1	ted/assembled at 983. The size of sof approximate	this trailer is app	proximately
Survey Type:		The state of the s	Classification:		
RLC Survey □	FSS X		Class 1 🗆 Class	2 🗖 Class 3 X Uni	known 🏻
Random/Uniform Surface Activity Measurements	Biased Surface Activity Measurements	Equipment Surface Activity Measurements	Media Samples	Volumetric Samples	Surface Activity Scans
28	0	0	0	0	Biased
Building:		Туре:		Survey Area:	
Survey Unit:			Area (m²):		
Survey Unit Desc	eription:				
Survey Type:		at the state of th	Classification:	***	
RLC Survey □	FSS □		Class 1 🗖 Class	2 □ Class 3 □ U	Jnknown □
Random/Uniform Surface Activity Measurements	Biased Surface Activity Measurements	Equipment Surface Activity Measurements	Media Samples	Volumetric Samples	Surface Activity Scans
Building:		Type:		Survey Area:	
Survey Unit:			Area (m²):	- Western - William - Will	
Survey Unit Desc	cription:	No.			
Survey Type:		,	Classification:		
RLC Survey □	FSS 🗆		Class 1 Class	2 □ Class 3 □ U	Jnknown □
Random/Uniform Surface Activity Measurements	Biased Surface Activity Measurements	Equipment Surface Activity Measurements	Media Samples	Volumetric Samples	Surface Activity Scans
Building:		Туре:		Survey Area:	
Survey Unit:			Area (m²):		
Survey Unit Desc	cription:				
Survey Type:			Classification:	2 ² -1 ² -	Aller State
RLC Survey □	FSS □		Class 1 □ Class	2 □ Class 3 □ U	Jnknown 🗆
Random/Uniform Surface Activity Measurements	Biased Surface Activity Measurements	Equipment Surface Activity Measurements	Media Samples	Volumetric Samples	Surface Activity Scans

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SURVEY PACKAGE SURVEY/SAMPLING INSTRUCTIONS FORM

Package ID: 2000-01

Building: T883A

Survey Area: Not Applicable

Survey Unit: Interior

Survey Unit Description: This trailer was constructed/assembled at this site, Cedar Avenue and Eighth Street, directly east of Building 883, in1983. The size of this trailer is approximately 28' X 70' and it is assembled from 2 trailer units of approximately 14' X 70' feet in size.

Minimum	Survey/Sami	pling Measurem	ent Requirements

Measurement	Number and Type	Comments
Surface Activity	INTERIOR FLOORS/WALLS/CEILINGS:	SEE NOTE 1
Measurements	28 surveys will be taken per the attached survey	SEE NOTE 2
	map.	SEE NOTE 3
		SEE NOTE 4
	QUALITY ASSURANCE SURVEYS	SEE NOTE 5
	QUALITY ASSOCIATION OF THE STATE OF THE STAT	SEE NOTE 6
	INTERIOR FLOORS/WALLS/CEILINGS:	
	5 surveys will be taken per direction from radiological engineering.	
		·

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SURVEY PACKAGE SURVEY/SAMPLING INSTRUCTIONS FORM (cont)

Package ID: 2000	-01	Building	g: T883A
Survey Area: Not	Applicable	Survey	Unit: Interior
Eighth Street, dire	ectly east of Building 883, in1	983. The	embled at this site, Cedar Avenue and size of this trailer is approximately eximately 14' X 70' feet in size.
	Minimum Survey/Sampling	Measurei	ment Requirements
Measurement	Number and Type		Comments
Surface Scanning	INTERIOR FLOORS:		SEE NOTE 1
Change #44 12900 6-20-00	Biased surface scans will be performed interior floors in areas where contaminated would accumulate. This includes sear corners, doorways and boundaries between different types of flooring. No more than 10% of the total area with scanned. QUALITY ASSURANCE SCAN SUINTERIOR FLOORS: 5 percent of total number of scans or of scan area will be taken per direction for radiological engineering.	nation ns, cracks, ween II be IRVEYS	SEE NOTE 2 SEE NOTE 3 SEE NOTE 4 SEE NOTE 5 SEE NOTE 6
Media Samples	NONE		
Volumetric Samples	NONE		
Isotopic Gamma	NONE		

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Scans

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24/242 Ru 3-182

SURVEY PACKAGE SURVEY/SAMPLING INSTRUCTIONS FORM (cont)

Package ID: 2000-01	Building: T883A
Survey Area: Not Applicable	Survey Unit: Interior

Survey Unit Description: This trailer was constructed/assembled at this site, Cedar Avenue and Eighth Street, directly east of Building 883, in1983. The size of this trailer is approximately 28' X 70' and it is assembled from 2 trailer units of approximately 14' X 70' feet in size.

Survey/Sampling Instructions

NOTE 1: Surveys of the area were established on a random basis and are delineated on page 14, RSFORMS-16.01-10, of the survey package. Survey points will be taken in the middle of the survey grid and will be cross-referenced to a common reference point in the trailer. These surveys will be taken in accordance with PRO-476-RSP-16.02, "Radiological Surveys of Surfaces and Structures", for the following:

- Total alpha contamination
- Total beta contamination
- Removable alpha contamination
- Removable beta contamination
- Biased scan measurements for alpha then beta/gamma contamination

For total alpha and total beta surveys, the LAB will be determined at each survey point by placing a piece of plywood over the probe face that is at least 0.5 inch thick and performing an alpha count and a beta count. The material background for both total alpha surveys and total beta surveys will be considered to be 0 dpm/100 cm².

Alpha scanning using the NE Electra for the DP6-BD and DP8A probes will be in accordance with Letter SJR-001-99, "Alpha Scan Rates for Building 779 Cluster Final Status Surveys," and Letter SJR-004-99, "Performance of Scan Surveys with the Bicron/NE DP8 Probe for Building 779 Cluster Final Status Surveys," respectively. Beta scanning using the NE Electra.

NOTE 2: Quality assurance prescribed surveys of the area will be taken in accordance with PRO-476-RSP-16.02, "Radiological Surveys of Surfaces and Structures" per the requirements in PRO-479-RSP-16.05, "Radiological Survey/Sample Quality Control," for the following:

- · Direct alpha contamination
- Direct beta contamination
- Scan measurements for alpha then beta/gamma contamination

The location of quality assurance surveys will be delineated by radiological engineering after the initial surveys are performed. Quality assurance surveys will be performed by a different individual than performed the original survey.

NOTE 3: The RCT shall document the results for all surveys performed and maintain with the survey instructions package.

NOTE 4: All survey instruments will be performance checked both prior to and after performing surveys, and both performance checks will be documented. Contact Radiological Engineering for direction if an instrument fails the post performance check.

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SURVEY PACKAGE SURVEY/SAMPLING INSTRUCTIONS FORM (cont)

Building: T883A Package ID: 2000-01 Survey Area: Not Applicable Survey Unit: Interior

Survey Unit Description: This trailer was constructed/assembled at this site, Cedar Avenue and Eighth Street, directly east of Building 883, in1983. The size of this trailer is approximately 28' X 70' and it is assembled from 2 trailer units of approximately 14' X 70' feet in size.

Survey/Sampling Instructions

NOTE 5: The following MDA requirements are a goal for each survey instrument. The MDA shall not exceed the Investigation Levels outlined in NOTE 6.

- 10 dpm/100 cm² for removable alpha contamination
- 50 dpm/100 cm² for total alpha contamination
- 500 dpm/100 cm² for removable beta contamination
- 2500 dpm/100 cm² for total beta contamination
- 150 dpm/100 cm² for alpha scan
- 7500 dpm/100 cm² for beta scan

NOTE 6: If a survey result exceeds the following investigation levels, contact radiological engineering before

- 15 dpm/100 cm² for removable alpha contamination
- 75 dpm/100 cm² for total alpha contamination
- 750 dpm/100 cm² for removable beta contamination
- 3750 dpm/100 cm² for total beta contamination
- 225 dpm/100 cm² for alpha scan
- 11250 dpm/100 cm² for beta scan

An investigation will be performed into the elevated results.

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r										GE 7 01	10
		TC	TAL S	URFACI	E ACTIV	ITY SURV	EY DATA F	ORM			
Survey A	rea: NOT AP	PLICABLE	Sı	urvey Ur	it: INTE	RIOR		Build	ing: T883.	A	
Survey U	nit Description	n: This trail	er was	constru	cted/ass	embled at	this site, C	edar Ave	nue and l	Eighth St	reet,
directly	east of Build	ling 883, in	1983. T	The size	of this	railer is a	pproximate	ly 28' X	70' and it	is assem	bled
from 2 t	railer units o	f approxim	ately 14	4' X 70'	feet in s	size.	• •	•			
				Total	Surface	Instrument	Data		*****		
Date	/ Time										
inst.	Νο.: α			····		Probe No.	:				
α	Νο.: β,γ					Probe No.:					
β,γ						rioue no					
Effic	iency (%): α	(Βγ	(cı	om/dpm)	Mat. Area	Bkgd: α		βγ	(dpm	$/100 \text{ cm}^2$
MDC	C(dpm/100 cm²	'): α		βγ							
Probe	e Correction Fa	ctor: $\alpha_{\underline{}}$		βγ	(10	00 cm²/prob					
Cal. I	Due Date:					Surv	ey Type:	Alpha	Beta		
	1			1						**NIat	Activity
Sample	Location /	Gross Co	unts	LAB	Bkgd	Net	Counts	*Gross	Activity		Activity -
Number	Description	(cpm		1	om)		pm)		00 cm^2	Mat. Ar	ea Bkgd.
	<u> </u>									(dpm/1	00 cm^2
			0.				T		-	ļ	1 0
		α	β,γ	α	β,γ	α	β,γ	α	β,γ	α	β,γ
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							Gross Activi Net Activity	ty			
RCT Printed N	lame		Employee #		mvity - IV	RCT Signatur			Date		
			- •								
RCT Technica	l Supervisor Printed Na	ame	Employee #	#		RCT Technica	al Supervisor Signatu	re	Date		<u> </u>

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77/242 Ro 3-185

		RE	MOVABLE S	URFACE ACT	IVITY DATA	A SURVE	Y FORM			
Survey A APPLIC	rea: NOT ABLE	S	Survey Unit: IN	TERIOR		Buildi	ng: T883A			- 114
Survey U	nit Description:	This to	railer was con	nstructed/asse	mbled at th	is site, Co	edar Aven	ue and	Eigh	th Street.
directly	east of Buildir	ng 883.	, in1983. The	size of this t	railer is app	roximate	lv 28' X 70	0' and	it is a	ssembled
from 2 t	railer units of a	approx	imately 14' X	70' feet in si	ize.					
				mear Survey I		nta				
				•						
Count I	Date / Time:									
mst. Ne	o.: ficiency (%): α			Probe N	0.:					
MDC (dnm/100 cm ² \:	· · · · · ·	<u>by</u>	Ry Inct RK	G: a	R	2/	(cnm	1	
Cal. Du	dpm/100 cm ²): ie Date:		u	Survey 7	C.α Γvne: Alpha	P	Beta-Gamn	na	$\overline{\Omega}$	
					.77.	-				
				Removable S	Survey Data					
Swipe Number	Location / Description	C	Comments	Gross C cpn	1		Counts om			e Activity * 100 cm ²)
				α	βγ	α	βγ	С	ι	βγ
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			7.00							
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	l		* (GROS	S Cts - Inst. Bk	g) \div (Eff.) = A	CTIVITY	L	L		
			(0000)	D Cto Hist. DK	6) · (DII.) - F	.C.I.VIII				
RCT Printed N	ame		Employee #		RCT Signature			-	Date	
RCT Technica	Supervisor Printed Name		Employee #		RCT Technical Su	pervisor Signatu	re		Date	

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	SURF	ACE SCAN	NING DAT	A SHEET	
Survey Area: NOT APP	LICABLE	Survey Unit: INT	ERIOR	Building: T883A	
Survey Unit Description: directly east of Building from 2 trailer units of	ng 883, in 198	33. The size of the	is trailer is appro	s site, Cedar Avenue a eximately 28' X 70' an	nd Eighth Street, d it is assembled
			trument Data		
Date / Time:		_			
inst. No.:		Probe No.:			
Cal. Due Date:		Survey Type:	Alpha Bet	ta-Gamma	
		Scan S	Survey Data		
Sample	Location				Scan
Number	Description		Comments		(100 cm ²)
	•			α*	β,γ*
~ ~~~					
RCT Printed Name	Emplo	oyee #	RCT Signature		Date
RCT Technical Supervisor Printed Name	Empl	oyee #	RCT Technical Super	visor Signature	Date
	l				

79/242 RO

^{*} If an elevated count rate or a sustained audible increase in the count rate is observed during the scan survey, OR the rate meter alarm sounds, THEN: Scan the immediate vicinity to determine the bounds of the elevated activity, and take a "Total Surface Activity" measurement and record. Mark the location of most elevated activity on the surface with a self-adhesive label or equivalent, ensuring that the marking is not applied directly over the point of interest. Further analysis is required by RS Supervision.

SURVEY PACKAGE CALCULATION WORKSHEET

Packa	ge ID: 2000-01		Building: T883A	**************************************	· · · · · · · · · · · · · · · · · · ·
Surve	y Area: Not Applicable		Survey Unit: Interior	— W. — — — — — — — — — — — — — — — — — —	
and Ei	ighth Street, directly east oximately 28' X 70' and it is	f Building 883	structed/assembled at this s , in1983. The size of this trailer units of approximation	ailer is	
X To	tal Surface Activity		☐ Media Surface Activi	ity	
X Re	movable Surface Activity		□ Volumetric Surface A	Activity	,
Step 1:	Calculate the relative shift Δ/σ $\Delta/\sigma_s = (DCGL-LBGR)/\sigma_s$ $\Delta/\sigma_s = 1.0$	S			
	where: A value of 1.0 was chosen sind use of 1.0 maximizes the number		is available and Δ/σ_s may vary be uired.	etween 1	.0 and 3.0. The
Step 2:		om the survey uni	hift and Table 7-1. Sign p is the t will be less than the $DCGL_w$ where 345		
Step 3:	Determine Decision Error Pere Typical (α) and (β) values use value of 1.645 and 1.645 respe	d at RFETS are 0.	and $Z_{1-\beta}$ and the selected decision .05 and 0.05 respectively. This y	error lev yields a Z	els α and β . $Z_{1-\alpha}$ and $Z_{1-\beta}$
Step 4:	Calculate Number of Data Poi	nts (N) for Sign T	est using the following equation	:	
	$N = \frac{(Z_{1-\alpha} + Z_{1-\beta})^2}{4(Sign p - 0.5)^2} =$	23.22			
Step 5:	Increase the number of data popossible data losses. 23.22*1.		sure sufficient power of the tests	s and to a	allow for
Conclus	sion:				
A total	of 28 data points will be needed	to satisfy MARS	SIM statistical requirements.		
				ΛΛ	
RICK	ROBERTS			W	11.21/00
Project RE	Printed Name		Project RE Signature	M //	Date
H.B. I	ESTABROOKS			V	13/100
RESS RE	Printed Name		RÉSS RE Signature		Date

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SURVEY PACKAGE SURVEY MAP

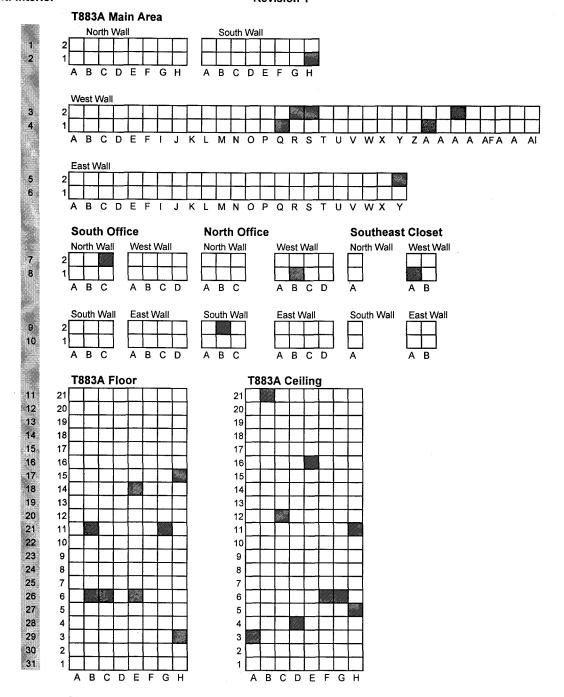
Package ID: 2000-01	Building: T883A
Survey Area: Not Applicable	Survey Unit: Interior
Survey Unit Description: This trailer was constructed Eighth Street, directly east of Building 883, in 1928' X 70' and it is assembled from 2 trailer units	983. The size of this trailer is approximately
Floor Area (m²): 160	Total Area (m ²): 596
SEE ATTACHED SURVEY MAP	
	,

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SURVEY PACKAGE SURVEY MAP Revision 1



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32

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X-Coordinate	Y-Coordinate		1	Y 04		^	<u>, , , , , , , , , , , , , , , , , , , </u>		<u> </u>	<u> </u>
	9	1	2	~ .	11				20	
	- 2	2	23	-	12			22		3
Total Surface Area	a = 546 m ²	3	7	21		17		23	١-	26
		4	24		10000	13			1	20
10% Scan Surface	Area = 54.6 m ²	5	l .		15	1		25	_	26
		6	8		16	_			20	
= one square	meter	7	11	9	17			27	8	17
41360		8	1	26		14		28	17	16
= direct & swip	oe .	9	15	4	19	16	8	ļ		
		10	3	7	20	25	4			



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SURVEY PACKAGE VALIDATION CHECKLIST FORM

Package ID: 2000-01	Building: T883A	and the second second
Survey Area: Not Applicable	Survey Unit: Interior	
Survey Type: Reconnaissance Level Characterization	Survey ☐ Final Status Survey	X
All Documentation Reviewed for Completion	RCT Supervisor	PRE
Scan Surveys	n/	ROM
Total Activity Surveys	W	KAM
Exposure Rate Surveys	N/A	N/A
Removable Surveys	V	ÐM
Media Samples	MA	N/R
Volumetric Samples	N/A	N/A
All Surveys and Samples Accounted For	RCT Supervisor	PRE
Scan Surveys		EM
Total Activity Surveys	A.d	DIM
Exposure Rate Surveys	N/A	NA
Removable Surveys		KUM
Media Samples	N/A	N/A
Volumetric Samples	N/A	N/A
Comments:		
Row Worker		7.5.42
RCT Supervisor Printed Name RICK-ROBERTS EM (1945)	RCT Supervisor Signature	Date
Froject RE Printed Name	Project RE Signature	Date (2-00)
H. B. ESTABROOKS		
RESS Manager Printed Name	RESS Manager Signature	8-3-00 Date
The state of the s		2-110

T8/3/00

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Survey Area:

N/A

Survey Unit:

Interior

Building:

T883A

Survey Unit Description:

Floors, walls, and ceilings of Trailer T883A

8. POST-PERFORMANCE ACTIVITIES

8.1 Documentation

Reviewed the above mentioned Survey Package and associated measurement data in accordance with PRO-478RSP-16.04, Radiological Survey/Sample Data Analysis. The following items are noted:

- 1. Various notes are provided on the Survey Package DQA Checklist. See DQA Checklist.
- 2. Various notes are provided within the Survey Package. See Survey Package.
- 3. DQA Checklist should have location to input Survey Area, Survey Unit, Building and Survey Unit Description to ensure improved tracking.
- 4. Section 7.2.2 Accuracy, of RSP-16.04 should be rewritten to provide usable accuracy analysis process. Interoffice Memorandum REVISION TO PRO-478-RSP-16.04, RADIOLOGICAL SURVEY/SAMPLE DATA ANALYSIS EDM-001-00 was written and concurred on to provide a usable accuracy analysis process.
- 5. Section 7.3, Data Quality Assessment (DQA) does not have instruction to address the situation when survey unit activity measurements exceed the DCGL_W but the survey unit mean does not exceed the DCGL_W.
- 6. Spreadsheets provided to perform statistical calculations.
- 7. Several forms have been generated to replace forms from RSP-16.02. RSP-16.02 should be revised to reflect this change/improvement.
- 8. Total number of data points is very conservative. Using MARSSIM guidance it can be shown that significantly less data points are statistically acceptable. See spreadsheets.
- 9. Survey maps need improvement. Methodology employed is one that was used prior to RSP-16.01 approval. Recommend scale maps with grid overlays or CAD drawing in the future. See B779 Closure Project maps as examples.
- 10. See data sheets for corrected data.

Prepared by: 900. 0000 / 3-10-00

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(09/30/99)

APPENDIX A

Page 1 of 1

DQA Checklist

§	Item	Performed By (Initials/Date)	Comments (number & attach)
7.1	Data Verification	DMU/3-3-00	
7.1[1]	DQOs implemented as prescribed	120m/3-3-00	
7.1[2]	All required supporting documents present	12mm/3-10-00	
7.1[3]	Outliers / anomalies addressed	Em 13-10-60	
7.2	Data Validation	DAN 3-10-00	
7.2.1	Survey/Sample Precision	Em /3-12-20	see spread sheets
7.2.2	Survey Accuracy	com/3-10-00	no samples taken
	Sample Accuracy	NA	no samples taken
7.2.3	Data Representative of survey unit	kmu/3-10-00	,
7.2.4	Survey/Sample/Scan Completeness	Epm/3-10-00	100%
7.2.5	Data Comparable to related units	RM /3-10.00	see spread sheets and Eping B
7.3	DQA complete	Em 3-10-00	see spreadsheets
7.3[3]	Any measurement > DCGL _w ?	NA	N/A
7.3[4]	Mean > DCGL _w	N/A	N/A
7.3.[5]	Any measurement > maximum DCGL	N/A	NA
7.4	Evaluation	AI/A	N/A
7.4[1][D]	New survey package (if req'd)	MA	N/A
7.4[1][E]	Radiological improvement report (if req'd)	N/A	NA
7.4[2]	Verify documentation complete	N/A	NA
8.0	Peer review	de 6/13/00	'
	Package submitted to project management	1814 3-3-55	
9.1	Records to Records Center (copy to project files)	Em 8-22-00	to the DOA

NOTE: The DQA Flow Chart (Appendix B) is provided as aid to illustrate the DQA process when performing survey/sample data analysis activities describe in this procedure.





Removable Activity

(dpm/100 cm²) Alpha

Survey Area - N/A	Survey Unit - Interior	Building - T883A

Survey Unit Description - Floors, walls and ceilings of Trailer T883A

Removable Contamination Data Sheet

20 dpm/100 cm² 28

DCGLw

Std Dev Mean

-1.2 -0.9

No measurement exceeds the DCGL_W

 0.2 dpm/100 cm^2 1.5 dpm/100 cm²

3-194

Removable Activity

dpm/100 cm²) Beta 14.8 19.2		(O	(U)
	(dpm/100 cm²) Beta	14.8	19.2
_			

	Y/N - 25	Survey Unit - Interior	1883A	Survey Unit Description - Floors, walls and ceilings of Trailer T883A	Removable Contamination Data Sheet	1000 dpm/100 cm ²	28	7.3 dpm/100 cm ²	23.3 dpm/100 cm ²		No measurement exceeds the DCGL _w																	
Cum August NIA	Survey Are	Survey Un	Building - 1883A	Survey Un	Removable	DCGLw	2	Mean	Std Dev		No measur																	
24 o	o. 4	19.2	32.8	-20.8	-5.2	-36.8	26.8	8.9-	18.8	-26.8	4.8	-6.8	42.8	-14.8	8.8	-46.8	20.8	-16.8	24.8	17.2	38.8	17.2	16.8	4.8	20.8	5.2	44.8	15.2

Total Surface Activity (dpm/100 cm²) Alpha

3.4 Survey Av. 2.0 Survey U. 3.4 Building - Survey U. 3.4 Building - Survey U. 3.4 DCGLw - 3.4 DCGLw - 3.4 DCGLw - 2.9 Std Dev 3.4 No measu 13.2 Precision 9.8 E-6F 9.8 E-14F 0.0 B-11F 2.9 B-6F 9.8 B-6F 9.8 Precision 9.8 B-6F 9.8 Precision 9.8 B-6F 9.8 B-6	Survey Area - N/A Survey Unit - Interior Building - T883A Survey Unit Description - Floors, walls and ceiling Total Surface Activity Data Sheet DCGL _w 100 dpm/100 cm² No measurement exceeds the DCGL _w No measurement exceeds 75% of the the DCGL _w No measurement exceeds 75% of the the DCGL _w Precision C ₁ C ₂ C ₁ -C ₂ (C ₁ +C ₂ E-6F 51.2 27.9 23.3 39 G-11F 3.4 -18.6 22 -12.2 B-11F 3.4 -18.6 22 -18.6 -18.6 B-6F 3.4 -6 9.4 -18.6 -18.6 -18.6 Precision (RPD) is out of specification due to low value	erior cription - Floors, w tivity Data Sheet 100 dpm/100 cm² 28 6.3 dpm/100 cm² 10.2 dpm/100 cm² t exceeds the DCG t exceeds 75% of t -1.9 9 9.3 -18.6 1 -6	s, walls an m² m² m² m² m² cGLw of the the 5.3 -12.2 22 9.4 tion due to	Id ceilings of DCGL _W (C ₁₊ C ₂)/2 39.55 0.75 3.2 -7.6 -1.3	Survey Area - N/A Survey Unit - Interior Building - T883A Survey Unit Description - Floors, walls and ceilings of Trailer T883A Total Surface Activity Data Sheet DCGLw 100 dpm/100 cm² No Mean 6.3 dpm/100 cm² Std Dev 10.2 dpm/100 cm² No measurement exceeds the DCGLw No measurement exceeds T5% of the the DCGLw Precision C Location C1 E-6F 51.2 E-12 27.9 G-15 6.4.C ₂)/2 Ref 5.3 B-17 3.4 -1.2 3.2 -3.4 -1.8 B-17 3.4 -6 9.4 -1.3 -7.3.0769 Precision (RPD) is out of specification due to low value survey measuremen
	measurements		ממס בוסוו	ow value se	nycy measurem
	on (RPD) is out	of specifica	tion due to	low value su	ırvey measuren
	on (RPD) is out	of specifica	tion due to	low value su	irvey measurer
				,	
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	2.4	q	9.4	7.	
0.0 B-11F	3.4	-18.6	22	-7.6	
	-2.9	6.3	-12.2	3.2	-381.25
	3.4	<u>6.</u>	5.3	0.75	706.6667
	51.2	27.9	23.3	39.55	58.91277
		ပ	ပ်	$(C_{1+}C_2)/2$	RPD
3.4					
	lon				
3.2					
	asurement exc	eeds 75%	of the the	DCGL _W	
	asurement exc	eeds the D	CGLW		
3.4					
		dpm/100 c	m²		
	6.3	dpm/100 c	m _z		
.3.4 n	28				
		dpm/100 c	m²		
-	urface Activity	/ Data She	et.		
	' Unit Descripti	ion - Floors	s, walls an	d ceilings o	f Trailer T883
3.4 Buildir	ng - T883A				
	Unit - Interior				
3.4 Survey	/ Area - N/A				
•					

Recalculated N

Sign p = 0.998650 N = 10.88	10.88*1.2 = 13.05
	Sign p = 0.998650 N = 10.88

N = 14

Total Surface Activity (dpm/100 cm²) Beta

47 40 374	Survey Area - N/A Survey Unit - Interior Building - T883A	a - N/A t - Interior '883A				
242	Survey Unit Description - Floors, Total Surface Activity Data Sheet	t Descripti ce Activity	ion - Floors / Data Shee	s, walls an	d ceilings of	Survey Unit Description - Floors, walls and ceilings of Trailer T883A Total Surface Activity Data Sheet
88	DCGLw	2000	5000 dpm/100 cm ²	m²		
29	<u> </u>	28	•			
145	Mean	168.7	168.7 dpm/100 cm ²	m²		
-94	Std Dev	226.0	226.0 dpm/100 cm ²	m²		
47			•			
-202	No measurement exceeds the DCGL _w	ement exc	eeds the D	CGLw		
61	No measurement exceeds 75% of the the DCGL _w	ement exc	eeds 75%	of the the	DCGLw	
94						
-172	Precision					
22						
519	Location	ပ်	ပ်	င္ပ-င္	(C ₁₊ C ₂)/2	RPD
239	E-6F	242	207	35	224.5	15.5902
330	G-11F	88	-36.7	124.7	25.65	486.1598
633	E-14F	229	43.4	185.6	136.2	136.2702
350	B-11F	374	233.8	140.2	303.9	46.1336
461	B-6F	47.1	73.5	-26.4	60.3	-43.78109
387						
498	Precision (RI	PD) is out	of specifica	tion due to	Precision (RPD) is out of specification due to low value survey	ırvey
253	measurements	nts				

Recalculated N

253 -205 -158 279 114

 $\Delta/\sigma_s = (DCGL-LBGR)/\sigma_s$ $\Delta/\sigma_s = (5000-2500)/226.0$ $\Delta/\sigma_s = 11.06 (default to 3)$ Sign p = 0.998650
N = 10.88
10.88*1.2 = 13.05
N = 14

Survey Area:	NA	Survey Unit:	INTERIOR	Building:	T-8+3/1	
Survey Unit De	escription	n				
		IN TEREON	L .			

SURVEY SIGNATURE SHEET

Removable /Total Surface Activity Performed By

RCT Printed Name RCT Printed Name RCT Signature Date RCT Printed Name RCT Signature RCT Signature Date RCT Printed Name RCT Printed Name RCT Signature RCT Signature Date				
A Preinted Name RCT Printed Name RCT Printed Name RCT Signature Date RCT Printed Name RCT Signature Date RCT Printed Name RCT Signature Date RCT Signature Date RCT Signature Date RCT Signature Date			shell	3.7.00
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RCT Printed Name RCT Signature Date RCT Signature P CHITTUM RCT Printed Name RCT Signature Date RCT Signature RCT Signature RCT Signature Date RCT Signature RCT Signature Date	A PARKETE		Ofenh	
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Quality Control Measurements Performed By

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RCT Printed Name	Employee #	RCT Signature	Date
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Survey Reviewed By

	-		
RCT Foreman Printed Name		RCT Føreman Signature	Date
Row Warsel			3/4/00
	_		

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Survey Area: NA Survey Unit: Imakion Building: 1883 A

Survey Unit Description

Interior

INSTRUMENT DATA SHEET

Removable Contamination Survey Instrument Data

Manufacturer	Eberline	Epertine	Eberline	Ebestine		
Model	SACA	BC4	SAC4	BC4		
Inst. ID #	1	2	3	4	5	6
Serial #	1170	928	1171	868		
Cal. Due Date	6.30.00	3.27.80	7.11.00	7.12.00	a\	n/
Analysis Date	3.1.00	3.1.00	3.1.00	3.1.50		
Instrument Bkg 10-min count time	0.4	37.8	0.3	39.7		
Instrument Eff (%)	33	25	33	25		
Instrument MDA						
2-min count time	9.0	68.1	8.3	69.6		

Total Surface Activity Instrument Data

ıufactui	er	N.E.	Tech.	N.E.	Tech.	N.E.	Tech.	NE TO		NE	TECH		
Model		Ele	ctra	Ele	ectra	Ele	ectra	Ector	TR A	Elec	tra		
Inst. ID#			7		8		9	1	0	1	1	1:	2
Serial # / P	robe #	1370	1158	2374	1921	2376	1521	2378	1554	2385	1931		1
Cal. Due D	ate	4.20	υU	\$ 2	ς - ευ	\$ ∈2	3 · 6 · 3	\$.3.		6.1	4.00		<u> </u>
Survey Dat	te	3-1-	ου	3-1	- ŭ L	3	2 - 0 0	3.0-€	७७ • हु _{डोये} ∞	3.3	3.00		Α
Alpha Bkg 90-sec count time	Beta Bkg 90-sec count time	3.3 3.00m	405	2.5	405	2.0	518	2.4	239	2.7	443		
Alpha Eff (%)	Beta Eff (%)	22,00	30.46	જું મેં હ	29.7	20:14	29.7	22.35	غائد تائ	21.49	29.94		
Alpha MDA 90-sec count time	Beta MDA 90-sec count time	38-1	255.2	35.1	261.9	35.1	313.6	360	249.6	37.5	273.1		

39.6

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Package ID: 2000-01
Building: T883A
Survey Unit: Interior
T883A

SURVEY PACKAGE SURVEY MAP Revision 1

Attachment to RSFORMS-16.01-10 Page 14 of 15

T883A Main Area SCAN LOCATIONS! North Wall South Wall A B C DEF West Wall MNOPQRS Y Z AA ABA A AFA East Wall J K L MNOP QRST **South Office North Office Southeast Closet** North Wall West Wall North Wall West Wall North Wall West Wall ABC ABCD АВ ABCD South Wall East Wall South Wall East Wall South Wall East Wall A B С CD ABC ABCD T883A Floor T883A Ceiling 11 12 13 14 15 16 17 21 20 20 NOTE MREHY SCANNES 19 19 18 18 WELL DEFERMINED 17 17 16 TRAFFIC 16 CARPET. 15 15 18 19 14 14 13 13 20 12 12 21 11 11 22 10 10 23 9 9 24 8 8 25 26 7 7 6 6 27 5 5 28 4 29 3 3 30 2 31 BCDEF GH ABCDEFGH

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32

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Survey Area:	NA	Survey Unit:		Building:	C. v. 3. 4			
Survey Unit D			INTERIOR T-8881					
RCT Initials/D		RCT Initials/Date:	ulk	RCT Initials/Date				
	al Survey NE Electra Scan &							
Leg	end: "R"- Roof, "W" -	West Wall, "S" – South ' "C" –Ceiling, "F"		st Wall, "N" – North	ı Wâll			
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Results/Comments:

Electra alpha scans were performed at the locations detailed on the survey map(s). All required accessible areas were scanned. All initial scan results were <225 dpm/100cm², unless noted on the survey form.

Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the survey form.

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Rev. 020900

Survey Area:	4.00	Survey Unit:		Building:	
Survey Unit D	Pescription:	INTER	10 16	<u> </u>	3/4
	INTERIO	a floor			4 A
RCT Initials/L	Date: And 3.1.00	RCT Initials/Date:	NK	RCT Initials/Date:	MA
Refer to the Fin	al Survey NE Electra Scan & In	vestigation Survey Form for	or instrumentation, surv	eyor & approval info	ormation.
Leg	end: "R"- Roof, "W" - W	est Wall, "S" - South "C" -Ceiling, "F"		all, "N" - North	Wall
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Results/Comments:

Electra alpha scans were performed at the locations detailed on the survey map(s). All required accessible areas were scanned. All initial scan results were <225 dpm/100cm², unless noted on the survey form.

Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the survey form.



* Designates corner closest to A-1 point of reference

Survey Area:		Survey Unit:		Building:	
	NA.	INTER	! to &	7-	Fr3A
Survey Unit D	<u>-</u>				
	i	TERIOR FLOOR	<u>.</u>		i s
RCT Initials/I	Date: 1 3.1.00]	RCT Initials/Date:	NIA	RCT Initials/Dat	e: NA
	al Survey NE Electra Scan & In				
Leg	end: "R"- Roof, "W" - W			Vall, "N" – Nort	h Wall
		"C" -Ceiling, "F"	- F100r		
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* Designates	corner closest to A-1 point	of reference			

Results/Comments:

Electra alpha scans were performed at the locations detailed on the survey map(s). All required accessible areas were scanned. All initial scan results were <225 dpm/100cm², unless noted on the survey form.

Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the survey form.

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urvey Area:		Survey Unit:		Building:		
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urvey Unit Descri	•					
	INTER	wa Flora				
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efer to the Final Sur	vey NE Electra Scan & In	vestigation Survey Form	for instrumentation,	surveyor & approval is	nformation.	
	"R"- Roof, "W" - W					
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Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the survey form.

 $_{Page} \underline{7}_{of} \underline{18}$

Rev. 020900

Survey Area:	,	Survey Unit:		Building:	
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	nal Survey NE Electra Scan & I				
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* Designates corner closest to A-1 point of reference Results/Comments:

Electra alpha scans were performed at the locations detailed on the survey map(s). All required accessible areas were scanned. All initial scan results were <225 dpm/100cm², unless noted on the survey form.

Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the survey form.

Rev. 020900 c:\Final Survey\DPElectraSurvey020900.doc

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Final Survey NE Electra Scan & Investigation Survey Map

Survey Area: NA	Survey Unit: INTERIOR	Building: T883A
Survey Unit Description: Inter		
RCT Initials/Date: 3-3-00	RCT Initials/Date:	RCT Initials/Date: NA
	Investigation Survey Form for instrumentation,	•
Legend: "R"- Roof, "W"-	West Wall, "S" - South Wall, "E" - Ea "C" - Ceiling, "F" - Floor	st Wall, "N" – North Wall
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* Designates corner closest to A-1 poi	nt of reference	

Daculta/Commenta

Electra alpha scans were performed at the locations detailed on the survey map(s). All required accessible areas were scanned. All initial scan results were <225 dpm/100cm², unless noted on the survey form.

Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the survey form.

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Page of

Final Survey NE Electra Scan & Investigation Survey Map

Survey Unit Description:	Survey Area:	Survey Unit:	Building:
RCT Initials/Date: RCT Initials/	Survey Unit Description:	1 Mischier	Te334
Refer to the Final Survey NE Electra Scan & Investigation Survey Form for instrumentation, surveyor & approval information. Legend: "R"-Roof, "W" - West Wall, "S" - South Wall, "E" - East Wall, "N" - North Wall "C" - Ceiling, "F" - Floor		surenos floor	
Legend: "R"-Roof, "W" - West Wall, "S" - South Wall, "E" - East Wall, "N" - North Wall "C" - Ceiling, "F" - Floor	RCT Initials/Date: 2 3 pl	RCT Initials/Date: NA	RCT Initials/Date: N
3-3 = 3-4 F	Refer to the Final Survey NE Elect	tra Scan & Investigation Survey Form for instrur	mentation, surveyor & approval information.
B-3 F (1)	Legend: "R"- Roof		
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Results/Comments:

Electra alpha scans were performed at the locations detailed on the survey map(s). All required accessible areas were scanned. All initial scan results were <225 dpm/100cm², unless noted on the survey form.

Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the survey form.

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* Designates corner closest to A-1 point of reference

Final Survey NE Electra Scan & Investigation Survey Form

Survey	Area:			Survey Ur				Building:	
Survey	Unit Des	cription:			نما	TERIOR	·	7-847	A
·			1.	UTERIOR FLO	no.72 9	CHAIS			
Loc.		El	ectra DP-6 B	eta			Electra D	P-6 Alpha	
ID#	RCT ID#	Inst. ID#	Elevated Audible observed? "Y" or "N"	60-sec PAT (dpm/100cm2)	RCT ID#	Inst. ID#	4-sec Audible observed? "Y" or "N"	30-sec Static (gcpm)	90-sec PAT (dpm/100cm ²)
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Final Survey NE Electra Scan & Investigation Survey Form (Continuation Sheet)

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Survey	Unit Des	Cription:				ERICA		7-8	1531
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Loc.		Ele	ectra DP-6 Be	eta			Electra D	P-6 Alpha	
*ID#	RCT ID#	Inst. ID#	Elevated Audible observed? "Y" or "N"	60-sec PAT (dpm/100cm2)	RCT ID#	Inst. ID#	4-sec Audible observed? "Y" or "N"	30-sec Static (gcpm)	90-sec PAT (dpm/100cm ²)
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Final Survey NE Electra Scan & Investigation Survey Form (Continuation Sheet)

Survey	Area:	NA		Survey Ui	nit:	TURA	0	Building:	
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Final Survey NE Electra Scan & Investigation Survey Form

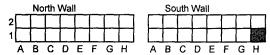
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Loc. ID#	RCT ID#	Inst. ID#	Elevated Audible observed? "Y" or "N"	60-sec PAT (dpm/100cm2)	RCT ID#	Inst. ID#	4-sec Audible observed? "Y" or "N"	30-sec Static (gcpm)	90-sec PAT (dpm/100cm ²)
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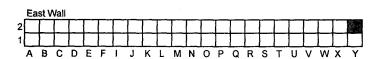
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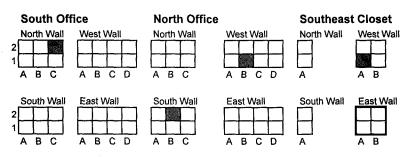
Page 14 of 18

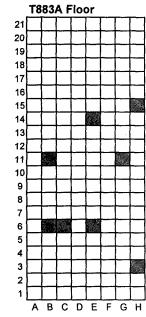


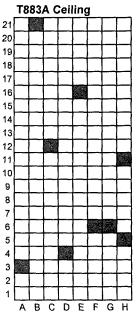












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	2	23	5	12	3	26	22	27	3
Total Surface Area = 546 m ²	3	7	21	13	17	2	23	5	26
	4	24	8	14	13	29	24	15	20
10% Scan Surface Area = 54.6 m ²	5	18	26	15	17	3	25	2	26
	6	8	29	16	5	18	26	20	27
= one square meter	7	11	9	17	16	3	27	8	17
	8	19	26	18	14	11	28	17	16
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Survey Unit Description	n	
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Sample location	RCT ID#	Ins	t ID#			ey count time LAI (sec) (cpr		i ·		Net counts (cpm)		Net Activity (dpm/100cm2)	
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D-4C		ક	्	90	90	0.4	200	4 25 4 600		0.5	192	2.0	(33)
E - 16 C		8	3	90	90	7.0	34	2.0	49	0.0	104	0.0	330
F - 60		8	8	90	90	10	3.0	9.4	a. C. S.	0.75	34.	7.4	4.31
G-/60°		8	3	90	90	-0.4	- 1974		Sat.	12.0	16	9.9	387
H-5C		8	8	90	90	0.0		2.0	Tr ta	7.0	(4) ·	4.8	4,90
M-11C		Ś	8	90	90	#1 (g #2)	174 a.	and the second	* (\$ (\$)	1 - 7 - 3	45	Q.Q	2.53 .
No		FFICE	• • • • • • • • • • • • • • • • • • • •	90	90							The same of the same of the same	
W1-8		8	र	90	90	j. †		Z	32.6	71.0	- (6)	4.9	-7.05
3-2S		\mathcal{S}	्र	90	90		7.49	* · * * * * * * * * * * * * * * * * * *	20.		4.4	7.2.5	- 157
.6.FQC		11	11	90	90	5.3	386	11.3		6.6.34		27.29.334	207
<u>.II.FQC</u>		11	111	90	90	4.7	425	4.3	414	-0.4	-11	-1.9	-36.7
<u>,14.F</u> QC		11	l li	90	90	6.7	460	8.7	473	2.0	13	4.3	43.4
<u>II.F</u> QC		_11	11	90	90	6.0	423	2.0	493	-4.0	70	-18.6	233.8
6.FQC		1	111	90	90	6.0	392	4.7	414	-1.3	22	-6.0	73.5

Survey Area:	NA	Survey Unit:	3040m.00	Building:	3334	
Survey Unit D		tion		* n		

			T	otal \$	Surfa	ace A	Activ	ity D	ata S	Shee	t		
Sample location	RCT ID#	Inst	ID#	Survey co	ount time		AB pm)		Count pm)		ounts om)	Net A	Activity 100cm2)
		α	β	α	β	α	β	α	β	α	β	α	β ~
SOUT		FICE	Contractor and access to	90	90	*					ar en gran en		
NS-2		8	₹.	90	90	1 17		*		3.4	-92	14.4	-2.19
South		Clos		90	90	for a constant					a magazina ya ya manana manana ka manana		
4-100		S	Ş	90	90	to the second		4.0	307	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	- 7	4.4	
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QC QC		-		90	90		 						
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QC		-		90	90		-				1		
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Note: QC measurements are to be collected by a different technician than the original survey. Mark the QC location number in the "Sample Location" column. Material background is assumed to be zero unless otherwise noted. "LAB" ~ local area background.

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Survey Area: N/A Survey Unit: INTERIOR Building: T883A

Survey Unit Description

Interior Walls, Floor, and Celling

Reul MAP

				R	emoval	ole Conta	amination		Sheet	
	Sample Location	RCT ID#	Inst			cpm)	I	Counts cpm)		able Activity n/100cm2)
			_α	β	α	β	α	β	α	β
	B21.		1	2		41.5	.6	3.7	1.8	14.8
	E.16.		3	4	0	44.5	3	4.8	-0.9	19.2
	1-17		Ĭ	2	0	46	- 14	8.2	-1.2	32.8
	4.11.		3	4	.5	34.5	1,2	-5.2	0.6	-20.8
c	G 16		1	2	1.5	36.5	1.1	-1.3	3.3	-5.2
	7 6		3	4	1.5	30.5	1.2	-9.2	3.6	-36.8
	0.4		1	2	.5	44.5		6.7	0.3	26.8
	H.5.		3	4		38	1 17	-1.7	2.1	-6.8
	A.3.		7	2	0	42.5	4	4.7	-1.2	18.8
	AC.2.		3	4	0	33	- 3	-6.7	-0.9	-26.8
	AA.1.		2	7	0	33	-,4	1.2	-1.2	4.8
	Mh.I.		3	4	0	38	3	1-1.7	-0.9	-6.8
	R.2		2	2	.5	48,5	15	10.7	0.3	42.8
			3	4		36	-,3	-3.7	-0.9	-14.8
4	5.2.		<u> </u>	2	0		-13	2.2	0.3	8.8
	1.1.2		3	4		40	1 1	1-11.7	-6.9	-46.8
	Y. 6,		ـ ک			28	-,3	5.2	0.3	20.8
	H.15.		1	2		43	1 7	-		-12.70 16:
	E.14;		3	4	5	35.5	12	1-4.2	-1.2	374-1-2 24.8
	B 11.		1	2		44	4	6.2		(00)
	6.11.5		3	4	.,5	44	1 ,2	4.3	1.8	
	C-6.			2		47.5	16			38.8
	B.6.		3	4	1.5	44	1.2	4.3	3.6	17.2
	E.6.		Ť	2	.5	42	1 1	4.2	0.3	+2.75 16:
	H-3.		3	4	0	38.5	3	-1.2	-0.9	74.8
	NOR									
	B.1.1		1	2	0	43	- ,4	5.2	-1.2	20.8
	B.2.		3	4	15	41	12	1,3	0.6	5.2
	D. C.			1						
	Sud		. 1	23	Eilae					
	Sart C.2.		$\overline{}$	2	0	49	4	11.2	-1.2.	44.8
	0.0.		•	1						
	Sou		کما	et						·
	A.1.		3	et 4	0	43,5	- ,3	3.8	-0.9	15.2
										-
			-	-						
•					1					

Page K of K

Survey Area: NA Survey Unit: TATERION Building: 1883 A Survey Unit Description

SURVEY SIGNATURE SHEET

Removable /Total Surface Activity Performed By

RCT Printed Name	Employee #	RCT Signature	Date
PCT Drieted New		* /	Date
RCT Printed Name	Employee #	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date
RCT Printed Name	Employee #		
	A A	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date

Quality Control Measurements Performed By

A LCHIE PARKEN RCT Printed Name		and	3-8-00
RCT Printed Name		RCT Signature	Date
•		U	Date
		-	
RCT Printed Name	Employee #	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date
	A		
RCT Printed Name	Employee #	RCT Signature	Date
		•	
RCT Printed Name	Employee #	RCT Signature	Date

Survey Reviewed By

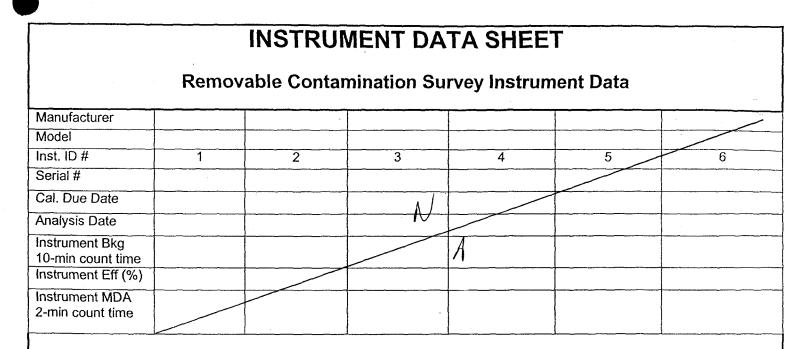
RCT Foreman Printed Name

RCT Foreman Signature

Date

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	·	
Survey Area: NA	Survey Unit: INEUN	Building: TXXX PA
Survey Unit Description	on BC CHECKS	



Total Surface Activity Instrument Data

Manufactur	er	N.E.	Tech.	N.E.	Tech.	N.E.	Tech.						$\overline{}$
Model		Ele	ctra	Ele	ctra	Ele	ctra		•				
Inst. ID#			7		8	(9	1	0 .	1	1	1	2
Serial # / P	robe #	2378	1956										
Cal. Due D	ate	5.3	3.00										
Survey Dat	e	3.8	100					A					
Alpha Bkg 90-sec count time	Beta Bkg 90-sec count time	0.0	374	·				78					
Alpha Eff (%)	Beta Eff (%)	22.35	3036										
Alpha MDA 90-sec count time	Beta MDA 90-sec count time	6.1	166.8										

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Final Survey NE Electra Scan & Investigation Survey Form

Survey		NA		Survey Ui	nit: TA	TERIO		Building: 788	30)A
Survey	Unit De	scription:		MATTOIS	1	C C L	ICAVS		
		Ele	ectra DP-6 Be	eta Thi Ekilo	10 4	CO	Electra D	P-6 Alpha	
Loc. ID#	RCT ID#	Inst. ID#	Elevated Audible observed? "Y" or "N"	60-sec PAT (dpm/100cm2)	RCT ID#	Inst. ID#	4-sec Audible observed? "Y" or "N"	30-sec Static (gcpm)	90-sec PAT (dpm/100cm²)
B-11-F		7	N	N/A			N	N/A	N/M
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3-218 3

36/3

Survey Area: NA		
Survey Unit Descrip	tion VERIFICATION OF SPECIFIC LOCATION	
	VERGICATION OF SPECIFIC LOCATION	NS

SURVEY SIGNATURE SHEET

Removable /Total Surface Activity Performed By

	Magan	3/8/00
	RCT Signature	Date
Employee #	RCT Signature	Date
Employee #	RCT Signature	Date
1/2		
Employee# / \	RCT Signature	Date
Employee #	RCT Signature	Date
Employee #	RCT Signature	Date
Employee #	RCT Signature	Date
	Employee # Employee # Employee # Employee #	Employee # RCT Signature Employee # RCT Signature Employee # RCT Signature Employee # RCT Signature

Quality Control Measurements Performed By

	• ,		
NOT Primed Name	∟mployee#	RCT Signature	Date
RCT Printed Name	Employee #	Bet Signature	Date
	NA		
RCT Printed Name	Employee#	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date

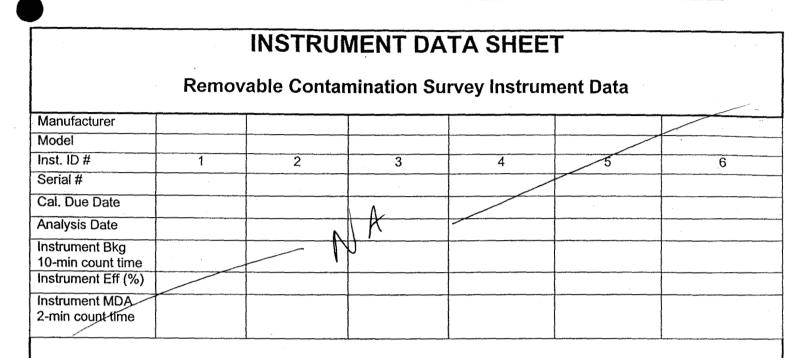
Survey Reviewed By

Rev Monster 3:300	RCT Foreman Printed Name	RCT Foreman Signature	Date
	Per Worster		34300

Survey Area: NA Survey Unit: NTERIOR Building: T883A

Survey Unit Description

VERIFICATION OF SPECIFIC LOCATIONS



Total Surface Activity Instrument Data

.vianufactu	rer	N.E.	Tech.	N.E.	Tech.	N.E.	Tech.						
Model		Ele	ctra	Ele	ectra	Ele	ctra						
Inst. ID#			7		8		9	1	0	. 1	1/	1	2
Serial # / F	Probe #	1395	1368										
Cal. Due D	ate	7-1	9-60				1	1					-
Survey Da	te	3-8	3-00										
Alpha Bkg 90-sec count time	Beta Bkg 90-sec count time	2.0	366										
Alpha Eff (%)	Beta Eff (%)	20.89	28.68										
Alpha MDA 90-sec count time	Beta MDA 90-sec count time	34.4	259.7					·					



Survey Area: NA Survey Unit: NTERIOR Building: T883A

Survey Unit Description
VERIFICATION OF SPECIFIC LOCATIONS

Sample	RCT		t ID#	otal S			AB		s Count		counts	No.	Activity
location	ID#	ıns	St 1D #	Survey co	c)		pm)		cpm)		pm)	(dpm/	100cm2)
		α	β	α	β	α	β	α	β	ŗα	β	α	β
E-6F	1	7	7	90	90	1.3	366	12.0	427	10.7	61	51.2	2.13
				90	90								/
				90	90								
				90	90		<u></u>		<u> </u>				
				90	90					<u> </u>			
				90	90							1	
				90	90								
				90	90						1		
				90	90								
				90	90					1			
				90	90								
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				90	90		X						
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			1	90	90					1		· ·	
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		-	-	90	90					<u> </u>	<u> </u>	1	
				90	90				1				
			17	90	90		1	1				· ·	
		-	1/	90	90			1	1				1.
		-	1	90	90		1			 			
		1	-	90	90				1		1	1	
	-	1	1	90	90	1	1		1	1	1		
QC	 / 	-		90	90		-		1	1			
QC	/	1	-	90	90	<u> </u>	1		1-		1	<u> </u>	
QØ		-	-	90	90		1	1		1	1		
	+	-		90	90	-		_			-		
ZQC	-			90	90	-	-	+	1	-	+	-	

Note: QC measurements are to be collected by a different technician than the original survey. Mark the QC location number in the "Sample Location" column. Material background is assumed to be zero unless otherwise noted. "LAB" ~ local area background.

Page 3 of 3

SURVEY PACKAGE COVER SHEET

Package ID: 2000-01	Building: T883A							
Survey Area: Not Applicable	Survey Unit: Exterior	· · · · · · · · · · · · · · · · · · ·						
Survey Unit Description: This trailer was constructed/assembled at this site, Cedar Avenue and Eighth Street, directly east of Building 883, in1983. The size of this trailer is approximately 28' X 70' and it is assembled from 2 trailer units of approximately 14' X 70' feet in size.								
Building Information:								
Survey Type: Reconnaissance Level Characterization Survey □ Final Status Survey X								
Building Type: Type 1 X Type 2 □ Type 3 □								
Classification: Class 1 Class 2 Class 3 X Unki	nown 🗆							
Contaminants of Concern: Plutonium X Uranium X C	Other 🗆							
Justification for Classification: This facility has contamination.	as no known history of radiolo	ogical						
Special Support Requirements: Ladder, manli	ift, scaffolding, and/or remote	reach tools and						
instrumentation may be required for surveying i	n overhead areas. Overhead a	reas include						
upper walls and ceilings on the interior and upp	er walls and roof on exterior.							
Special Safety Precautions: Access to overhead caution when working in overheads.	ad areas may require additiona	ll controls. Use						
Isolation Controls:								
Level 1 Level 2 X N/A								
Labeling Requirements: The location where fi	xed and removable surveys ar	e performed will						
be marked using a sticker or a marker and then	cross-referenced to the survey	results.						
Survey Package Implementation:								
	_							
RICK ROBERTS								
	iological Engineer Signature	Date						
NOT APPLICABLE		N/A						
REFS Manager Printed Name	S Manager Signature	Date						
H. B. ESTABROOKS		(14/12)						
RESS Manager Printed Name	SS Manager Signature	Date						
Survey Package Closure:								
RICK ROBERTS DIM 1 (3)53 CELL D. MCKAMEY		8,5,740						
	SS Radiological Engineer Signature	Date						
	'A	N/A						
REFS Manager Printed Name	S Manager Signature	Date						
JW Marariey	TO TRANSIN	8/3/00						
RESS Manager Printed Name	SS Manager Signature	Date						

08/3/00

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3-222 84/242 RO

SURVEY PACKAGE TRACKING FORM

	Building: T883A					
able	Survey Unit: Exterior					
Release Date	Validation Date	Closure Date				
11217	2241 1/16 p. 1	2324 342				
4-1-2 2004						
4.000						
	A A A A A A A A A A A A A A A A A A A	Release Date Validation Date				

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SURVEY PACKAGE CORRECTION/CHANGE HISTORY FORM

Package ID: 2000-01		Building: T883A					
Survey Area: Not Applicable		Survey Unit: Exterior					
Change #	Description		Initiator/ PRE Date				
ı	From Jana Sanage	Later Later William	1.11	All Comments			
	Michael Jank			100			
2_	Λ	ing the contract		July Market			
	Richard de de la companya della companya de la companya della comp	4 (1)		<u></u>			
3	Perform roof survey !	sanding per	HAW 3/14/50				
	Letter RSR-003-00 &	etet-3/4/00		A 2.20 4K			
· · · · · · · · · · · · · · · · · · ·	(Sup. 84 of 242)						
4	2 samples and 190 sample	required per	FM/4/1/00	do			
	Charactery tim Package Sup						
	Sampling and Analysis of Re	Ming Matereal					
	from Group B& C for Isotopic	Analysis	,				
5	Drof survey / sampling perfor		FAM 6/7/00				
	Letter 1004-023-00 (). 36	of ava)					
6	corrected scan requirement	· •	KONU 6-20-00	<u> </u>			
	<u> </u>						
·							
·							
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INITIAL SURVEY PACKAGE DESIGN FORM

Package ID: 2000-01 Building: T883A		Type: 1				
Survey Area: No	t Applicable	Survey Unit: Ext	erior	ior Area (m ²): 340		
Survey Unit Description: This trailer was constructed Eighth Street, directly east of Building 883, in 128' X 70' and it is assembled from 2 trailer unit			983. The size of	this trailer is app	proximately	
Survey Type:			Classification:		and the state of t	
RLC Survey □	FSS X		Class 1 Class	2 🗖 Class 3 X Un	known 🗆	
Random/Uniform Surface Activity Measurements	Biased Surface Activity Measurements	Equipment Surface Activity Measurements	Media Samples	Volumetric Samples	Surface Activity Scans	
28	0	0	tillo o	0	Biased	
Building:		Type: Change	4 100M 4/1/00	Survey Area:		
Survey Unit:			Area (m²):			
Survey Unit Desc	ription:					
Survey Type:			Classification:			
RLC Survey □	FSS □		Class 1 Class	2 □ Class 3 □ U	Jnknown □	
Random/Uniform Surface Activity Measurements	Biased Surface Activity Measurements	Equipment Surface Activity Measurements	Media Samples	Volumetric Samples	Surface Activity Scans	
Building:		Туре:		Survey Area:		
Survey Unit:			Area (m²):			
Survey Unit Description:						
Survey Type:	LEAVA PARTIE	A with the water water with the control of the cont	Classification:	Fo	***	
RLC Survey □	FSS □		Class 1 Class		Jnknown 🗆	
Random/Uniform Surface Activity Measurements	Biased Surface Activity Measurements	Equipment Surface Activity Measurements	Media Samples	Volumetric Samples	Surface Activity Scans	
				and the state of t		
Building:		Type:		Survey Area:		
Survey Unit:			Area (m²):			
Survey Unit Desc			122 011 (222)			
	cription:	WICK COLUMN			All the property of the second	
Survey Type:	ription:		Classification:			
Survey Type: RLC Survey □	ription:			2 □ Class 3 □ U	Jnknown □	
1		Equipment Surface Activity Measurements	Classification:	2 □ Class 3 □ U Volumetric Samples	Jnknown □ Surface Activity Scans	

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SURVEY PACKAGE SURVEY/SAMPLING INSTRUCTIONS FORM

Package ID: 2000-01	Building: T883A
Survey Area: Not Applicable	Survey Unit: Exterior

Survey Unit Description: This trailer was constructed/assembled at this site, Cedar Avenue and Eighth Street, directly east of Building 883, in1983. The size of this trailer is approximately 28' X 70' and it is assembled from 2 trailer units of approximately 14' X 70' feet in size.

	Minimum Survey/Sampling Measurer	ment Requirements				
Measurement	Number and Type	Comments				
Surface Activity	EXTERIOR WALLS/ROOF:	SEE NOTE 1				
Measurements	28 surveys will be taken per the attached survey	SEE NOTE 2				
	map.	SEE NOTE 3				
		SEE NOTE 4				
	QUALITY ASSURANCE SURVEYS	SEE NOTE 5				
		SEE NOTE 6				
	EXTERIOR WALLS/ROOF:					
	5 surveys will be taken per direction from radiological engineering.					

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SURVEY PACKAGE SURVEY/SAMPLING INSTRUCTIONS FORM (cont)

Package ID: 2000-01Building: T883ASurvey Area: Not ApplicableSurvey Unit: Exterior

Survey Unit Description: This trailer was constructed/assembled at this site, Cedar Avenue and Eighth Street, directly east of Building 883, in1983. The size of this trailer is approximately 28' X 70' and it is assembled from 2 trailer units of approximately 14' X 70' feet in size.

Minimum Survey/Sampling Measurement Requirements

Measurement	Number and Type	Comments
Surface Scanning	EXTERIOR WALLS/ROOF:	SEE NOTE 1
	Biased surface scans will be performed on the	SEE NOTE 2
	exterior where contamination would accumulate. This includes seams, cracks and corners. Both	SEE NOTE 3
	the exterior walls and roof will be scanned.	SEE NOTE 4
	lace .	SEE NOTE 5
Change #6 150m/0-20-00	No more than 10% of the total area will be scanned.	SEE NOTE 6
	QUALITY ASSURANCE SCAN SURVEYS	
	EXTERIOR WALLS/ROOF:	
	5 percent of total number of scans or of total scan area will be taken per direction from radiological engineering.	
	and GoV	
Media Samples	NONE a Change & of BM 4/1/100	
Volumetric Samples	NONE	
Isotopic Gamma Scans	NONE	

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SURVEY PACKAGE SURVEY/SAMPLING INSTRUCTIONS FORM (cont)

Package ID: 2000-01	Building: T883A			
Survey Area: Not Applicable	Survey Unit: Exterior			

Survey Unit Description: This trailer was constructed/assembled at this site, Cedar Avenue and Eighth Street, directly east of Building 883, in1983. The size of this trailer is approximately 28' X 70' and it is assembled from 2 trailer units of approximately 14' X 70' feet in size.

Survey/Sampling Instructions

NOTE 1: Surveys of the area were established on a random basis and are delineated on page 14, RSFORMS-16.01-10, of the survey package. Survey points will be taken in the middle of the survey grid and will be crossreferenced to a common reference point in the trailer. These surveys will be taken in accordance with PRO-476-RSP-16.02, "Radiological Surveys of Surfaces and Structures", for the following:

- Total alpha contamination
- Total beta contamination
- Removable alpha contamination
- Removable beta contamination
- Biased scan measurements for alpha then beta/gamma contamination

For total alpha and total beta surveys, the LAB will be determined at each survey point by placing a piece of plywood over the probe face that is at least 0.5 inch thick and performing an alpha count and a beta count. The material background for both total alpha surveys and total beta surveys will be considered to be 0 dpm/100 cm².

Alpha scanning using the NE Electra for the DP6-BD and DP8A probes will be in accordance with Letter SJR-001-99, "Alpha Scan Rates for Building 779 Cluster Final Status Surveys," and Letter SJR-004-99, "Performance of Scan Surveys with the Bicron/NE DP8 Probe for Building 779 Cluster Final Status Surveys," respectively. Beta scanning using the NE Electra.

NOTE 2: Quality assurance prescribed surveys of the area will be taken in accordance with PRO-476-RSP-16.02, "Radiological Surveys of Surfaces and Structures" per the requirements in PRO-479-RSP-16.05, "Radiological Survey/Sample Quality Control," for the following:

- Direct alpha contamination
- Direct beta contamination
- Scan measurements for alpha then beta/gamma contamination

The location of quality assurance surveys will be delineated by radiological engineering after the initial surveys are performed. Quality assurance surveys will be performed by a different individual than performed the original survey.

NOTE 3: The RCT shall document the results for all surveys performed and maintain with the survey instructions package.

NOTE 4: All survey instruments will be performance checked both prior to and after performing surveys, and both performance checks will be documented. Contact Radiological Engineering for direction if an instrument fails the post performance check.

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SURVEY PACKAGE SURVEY/SAMPLING INSTRUCTIONS FORM (cont)

Package ID: 2000-01	Building: Trailer XXXX
Survey Area: Not Applicable	Survey Unit: Interior/Exterior

Survey Unit Description: This trailer was constructed/assembled at this site, Cedar Avenue and Eighth Street, directly east of Building 883, in1983. The size of this trailer is approximately 28' X 70' and it is assembled from 2 trailer units of approximately 14' X 70' feet in size.

Survey/Sampling Instructions

NOTE 5: The following MDA requirements are a goal for each survey instrument. The MDA shall not exceed the Investigation Levels outlined in NOTE 6.

- 10 dpm/100 cm² for removable alpha contamination
- 50 dpm/100 cm² for total alpha contamination
- 500 dpm/100 cm² for removable beta contamination
- 2500 dpm/100 cm² for total beta contamination
- 150 dpm/100 cm² for alpha scan
- 7500 dpm/100 cm² for beta scan

NOTE 6: If a survey result exceeds the following investigation levels, contact radiological engineering before proceeding:

- 15 dpm/100 cm² for removable alpha contamination
- 75 dpm/100 cm² for total alpha contamination
- 750 dpm/100 cm² for removable beta contamination
- 3750 dpm/100 cm² for total beta contamination
- 225 dpm/100 cm² for alpha scan
- 11250 dpm/100 cm² for beta scan

An investigation will be performed into the elevated results.

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TOTAL SURFACE ACTIVITY SURVEY DATA FORM											
urvey A	rea: NOT AP	PLICABL	E S	Survey Ur	nit: EXT	ERIOR		Build	ing: T883	Ā	
directly	Survey Unit Description: This trailer was constructed/assembled at this site, Cedar Avenue and Eighth Street, directly east of Building 883, in1983. The size of this trailer is approximately 28' X 70' and it is assembled from 2 trailer units of approximately 14' X 70' feet in size.										
	/ m:				Surface	Instrument	Data				
Date Inst. 1	/ Time No.: α		.,			Probe No.	:				
αInst. 1	Νο.: β,γ					Probe No.:					
β.γ	ency (%): α								βγ	(dpm	/100 cm ²)
MDC	(dpm/100 cm ²	'): α		βγ							
	Correction Fa			-		00 cm²/prob Surve		Alpha	Beta		
Sample Number	Location / Description	Gross (cp		1	Bkgd om)		Counts cpm)		Activity 100 cm ²)	Gross A Mat. Ar	Activity Activity - ea Bkgd. 00 cm ²)
		α	β,γ	α	β,γ	α	β,γ	α	β,γ	α	β,γ
				 				 			
)									ļ	ļ	
				 							-
								ļ <u>.</u>			
										<u> </u>	

17								-			
<u> </u>		1	* (Gr	oss Cts - I	 LAB) ÷ (F	$Eff.) \times CF =$	Gross Activi	ty		<u> </u>	<u> </u>
RCT Printed N	ame			*Gross Ac		Iat. Bkg = N	let Activity	- <i>J</i>	Date		
1011 Imod IV			Zanpioyee			NC1 Signatur	_		Date		
RCT Technical	Supervisor Printed Na	me	Employee	:#		RCT Technica	l Supervisor Signati	ire	Date		

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		REMOVABLE	SURFACE ACT	TIVITY DAT	ΓA SURVE	Y FORM			
Survey A APPLICA	rea: NOT ABLE	Survey Unit: I	Survey Unit: EXTERIOR			ng: T883A			444
directly	east of Building	his trailer was co 883, in1983. The proximately 14'	e size of this	trailer is ap					
110111 2 ti	and units of ap	proximately 14	Smear Survey I		Data				
Count I	Date / Time:								
Inst. No	<u></u>	βγ	Probe N	lo.:				_	
Inst. Ef	ficiency (%): α	βγ							
MDC (ipm/100 cm²):	α	βγ Inst. BK	G: α	ho [Poto Comr	(cpm	ŋ	
Cai. Du	c Date		Survey	Type: Alpi	na	Deta-Gailli	па		
			Removable	Survey Data	1		40		
Swipe Number	Location / Description	Comments	Gross C		i	Net Counts Cpm		Removable Activity * (dpm/100 cm ²)	
1			α	βγ	α	βγ	C	ι	βγ
		,					ļ		
			-				ļ		
<u> </u>			-						
					 	 	 		
			·				 		
							ļ		
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						<u> </u>			
			-				-		
						<u> </u>	 		
						<u> </u>	 		
							+		
					 	 			
		* (GRC	OSS Cts - Inst. Bk	(g) ÷ (Eff) =	ACTIVITY				
RCT Printed N	ume	Employee #	The man bit	RCT Signature				Date	
		Zimpoyee #		Te i Signature				2410	
RCT Technical	Supervisor Printed Name	Employee #		RCT Technical	Supervisor Signatu	re		Date	

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SURFACE SCANNING DATA SHEET						
urvey Area: NOT APPLICABLE	Survey Unit: EXTE	RIOR	Building: T883A	- 1244		
Survey Unit Description: This trail directly east of Building 883, in from 2 trailer units of approxim	11983. The size of this thately 14' X 70' feet in s	railer is approxim ize.				
	Scan Instru	ment Data				
Date / Time:						
Inst. No.:	Probe No.:					
Cal. Due Date:	Survey Type:	Alpha Beta-Ga	mma			
· · · · · · · · · · · · · · · · · · ·	Scan Surv	vev Data				
Sample Loca	ation /		Sca	n		
± ,	3	Comments	(dpm/10			
			α*	β,γ*		
				 		
				· · · · · · · · · · · · · · · · · · ·		
				1127		
		<u>, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,</u>				
				···		
RCT Printed Name	Employee #	RCT Signature	<u> </u>	Date		
RCT Technical Supervisor Printed Name	Employee #	RCT Technical Supervisor Signature	gnature	Date		

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^{*} If an elevated count rate or a sustained audible increase in the count rate is observed during the scan survey, OR the rate meter alarm sounds, THEN: Scan the immediate vicinity to determine the bounds of the elevated activity, and take a "Total Surface Activity" measurement and record. Mark the location of most elevated activity on the surface with a self-adhesive label or equivalent, ensuring that the marking is not applied directly over the point of interest. Further analysis is required by RS Supervision.

SURVEY PACKAGE CALCULATION WORKSHEET

Package ID: 2000-01	Building: T883A
Survey Area: Not Applicable	Survey Unit: Exterior

Survey Unit Description: This trailer was constructed/assembled at this site, Cedar Avenue and Eighth Street, directly east of Building 883, in1983. The size of this trailer is approximately 28' X 70' and it is assembled from 2 trailer units of approximately 14' X 70' feet in size.

X Total Surface Activity

- ☐ Media Surface Activity
- X Removable Surface Activity
- □ Volumetric Surface Activity

Step 1: Calculate the relative shift Δ/σ_s .

 $\Delta/\sigma_s = (DCGL-LBGR)/\sigma_s$

 $\Delta/\sigma_s = 1.0$

where:

A value of 1.0 was chosen since no survey data is available and Δ/σ_s may vary between 1.0 and 3.0. The use of 1.0 maximizes the number of surveys required.

- Step 2: Determine Sign p using the calculated relative shift and Table 7-1. Sign p is the estimated probability that a random measurement from the survey unit will be less than the $DCGL_w$ when the survey unit median is actually at the LBGR. Sign p = 0.841345
- Step 3: Determine Decision Error Percentiles for $Z_{1-\alpha}$ and $Z_{1-\beta}$ and the selected decision error levels α and β . Typical (α) and (β) values used at RFETS are 0.05 and 0.05 respectively. This yields a $Z_{1-\alpha}$ and $Z_{1-\beta}$ value of 1.645 and 1.645 respectively.
- Step 4: Calculate Number of Data Points (N) for Sign Test using the following equation:

$$N = \frac{(Z_{1-\alpha} + Z_{1-\beta})^2}{4(Sign\ p - 0.5)^2} = 23.22$$

Step 5: Increase the number of data points by 20% to ensure sufficient power of the tests and to allow for possible data losses. 23.22*1.2 = 27.86

Conclusion:

A total of 28 data points will be needed to satisfy MARSSIM statistical requirements.

RICK ROBERTS		1/28/00
Project RE Printed Name	oject RE Signature	Date
H.B. ESTABROOKS		1/30/00
RESS RE Printed Name	SS RE Signature	Date

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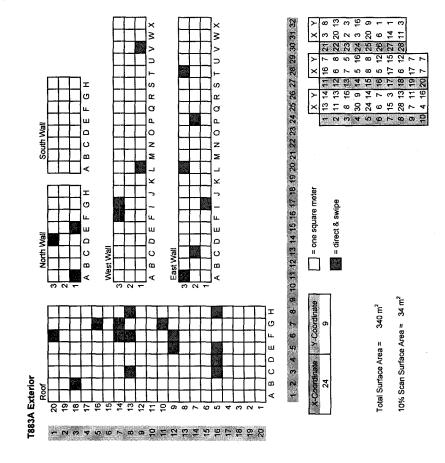
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SURVEY PACKAGE SURVEY MAP

Package ID: 2000-01	Building: T883A
Survey Area: Not Applicable	Survey Unit: Exterior
Survey Unit Description: This trailer was constructed Eighth Street, directly east of Building 883, in 1 28' X 70' and it is assembled from 2 trailer units	983. The size of this trailer is approximately
Floor Area (m ²): 160	Total Area (m ²): 340
SEE ATTACHED SURVEY MAP	

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SURVEY PACKAGE VALIDATION CHECKLIST FORM

Package ID: 2000-01	Building: T883A							
Survey Area: Not Applicable	Survey Unit: Exterior							
Survey Type: Reconnaissance Level Characterization	Survey Final Status Survey	X						
All Documentation Reviewed for Completion	RCT Supervisor	PRE						
Scan Surveys		EM						
Total Activity Surveys	grade .	KOM						
Exposure Rate Surveys	N/A	N/A						
Removable Surveys	18	RAM						
Media Samples		Dom						
Volumetric Samples	N/A	N/A						
All Surveys and Samples Accounted For	RCT Supervisor	PRE						
Scan Surveys	N	EDM						
Total Activity Surveys	No.	EM						
Exposure Rate Surveys	N/A	N/A						
Removable Surveys	N	KORM						
Media Samples		Dary						
Volumetric Samples	N/A	N/A						
Comments:								
								
	/ //							
RON Working		12/2/2						
RCT Supervisor Printed Name	RCT Supervisor Signature	Date						
RICK ROBERTS EM 6/12/20 ERA D. MULAYEY	2. Oli My forestille	r 6-12-00						
Project RE Printed Name	Project RE Signature	Date						
H.B. ESTABROOKS TW Mahaffey	Hor malifley	8300						
RESS Manager Printed Name	RESS Manager Signature	Date						

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Survey Area:

N/A

Survey Unit:

Exterior

Building:

T883A

Survey Unit Description:

Roof and walls of Trailer T883A

8. POST-PERFORMANCE ACTIVITIES

8.1 Documentation

Reviewed the above mentioned Survey Package and associated measurement data in accordance with PRO-478RSP-16.04, Radiological Survey/Sample Data Analysis. The following items are noted:

- 1. Various notes are provided on the Survey Package DQA Checklist. See DQA Checklist.
- 2. Various notes are provided within the Survey Package. See Survey Package.
- 3. DQA Checklist should have location to input Survey Area, Survey Unit, Building and Survey Unit Description to ensure improved tracking.
- 4. Section 7.2.2 Accuracy, of RSP-16.04 should be rewritten to provide usable accuracy analysis process. Interoffice Memorandum REVISION TO PRO-478-RSP-16.04, RADIOLOGICAL SURVEY/SAMPLE DATA ANALYSIS EDM-001-00 was written and concurred on to provide a usable accuracy analysis process.
- 5. Section 7.3, Data Quality Assessment (DQA) does not have instruction to address the situation when survey unit activity measurements exceed the DCGL_W but the survey unit mean does not exceed the DCGL_W.
- 6. Spreadsheets provided to perform statistical calculations.
- 7. Several forms have been generated to replace forms from RSP-16.02. RSP-16.02 should be revised to reflect this change/improvement.
- 8. Survey maps need improvement. Methodology employed is one that was used prior to RSP-16.01 approval. Recommend scale maps with grid overlays or CAD drawing in the future. See B779 Closure Project maps as examples.
- 9. See data sheets for corrected data.

Drepared by: 5, 13, 2783, 6-1-00

(09/30/99)

APPENDIX A

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DQA Checklist

2	Item	Performed By	Comments
§	Item	(Initials/Date)	(number & attach)
7.1	Data Verification	10my / 6/1/00	
7.1[1]	DQOs implemented as prescribed	100m/ 6/1/00	
7.1[2]	All required supporting documents present	150m/ 6/1/00	
7.1[3]	Outliers / anomalies addressed	sour / 6/1/00	
7.2	Data Validation	109m/6/1/00	
7.2.1	Survey/Sample Precision	pay/6/1/00	
7.2.2	Survey Accuracy	EBM/6/1/00	see spreadsheets
	Sample Accuracy	100my 6/1/00	,
7.2.3	Data Representative of survey unit	com/6/1/00	
7.2.4	Survey/Sample/Scan Completeness	earl 6/1/00	100°/0
7.2.5	Data Comparable to related units	com/ 6/1/20	yes Gmy B see spreadsheets
7.3	DQA complete	100m/6/1/10	see spreadsheets
7.3[3]	Any measurement > DCGL _w ?	104/6/1/00	
7.3[4]	Mean > DCGL _w	NA	
7.3.[5]	Any measurement > maximum DCGL	NA	
7.4	Evaluation	NA	
7.4[1][D]	New survey package (if req'd)	NA	
7.4[1][E]	Radiological improvement report (if req'd)	NA	
7.4[2]	Verify documentation complete	NA	
8.0	Peer review	d- 6/13/00	NONE
	Package submitted to project management	1000 Serve	
9.1	Records to Records Center	EDM /8-22-00	
	(copy to project files)		DOA

NOTE: The DQA Flow Chart (Appendix B) is provided as aid to illustrate the DQA process when performing survey/sample data analysis activities describe in this procedure.



· •••



Removable Activity (dpm/100 cm²) Alpha

Survey Area - N/A	Survey Unit - Exterior	Building - T883A	Survey Unit Description - Roof and walls of Trailer T883A	Removable Contamination Data Sheet	DCGL _w 20 dpm/100 cm ²
0.3	-1.2	1.8	0.3	6.4	8.

 $1.0 \text{ dpm/}100 \text{ cm}^2$ $1.8 \text{ dpm/}100 \text{ cm}^2$

Mean Std Dev

Removable Activity

	Survey Area - N/A
(dpm/100 cm²) Beta	-11.6

32.4	Survey Onit - Exterior	Exterior
-3.6	Building - T883A	i3A
13.6	Survey Unit D	Survey Unit Description - Roofs and walls of Trailer T883A
-13.6	Removable C	Removable Contamination Data Sheet
24.4	DCGLw	1000 dpm/100 cm ²
-7.6	E	28
26.4	Mean	-18.3 dpm/100 cm²
-11.6	Std Dev	34.6 dpm/100 cm ²
-5.6		
-37.6	No measurem	No measurement exceeds the DCGL _W
22.4		
-29.6		
-17.6		
-15.6		
-159.6		
-25.6		
-33.6		
-15.6		
-13.6		
-15.6		
-39.6		
-13.6		
-39.6		
-39.6		
-17.6		
-37.6		
-25.6		

Total Surface Activity (dpm/100 cm²) Alpha

Survey Area - N/A	Survey Unit - Exterior	Building - T883A	Survey Unit Description - Roof and walls of Trailer T883A	Total Surface Activity Data Sheet	DCGL _w 100 dpm/100 cm ²	28	Mean 64.2 dpm/100 cm²	Std Dev 42.4 dpm/100 cm ²		Ten measurements exceeds the $DCGL_W$	Thirteen measurements exceeds 75% of the the $\sf DCGL_W$		Precision		Location C_1 C_2 C_1 - C_2 $(C_1+C_2)/2$ RPD	V-1W 61.7 15.4 46.3 38.55 120.1038	L-1W 16.5 15.4 1.1 15.95 6.896552	29.1 21.9	I-1E 0.0 12.6 -12.6 6.3 -200	C-2E 35.9 27.9 8 31.9 25.07837		Precision (RPD) is out of specification due to low value survey measurements	measurements		Recalculated N		$\Delta/\sigma_{\rm s}=({ m DCGL ext{-}LBGR})/\sigma_{\rm s}$
45.0 Su	26.2 Su	29.1 Bu	42.2 Su	22.8 To	16.5 DC	61.7 n	19.4 Me	35.9 St	0.0	26.2 Te	-2.9 Th	9.6	100.2 Pr	101.1					110.5	83.7 C-3	65.8	119.5 Pre	128.4 me	95.7	86.4 Re	56.8	53.7 \(\text{\lambda}\)



 $\Delta/\sigma_s = 1.18$ (Default to 1.1)

Sign p = 0.864334 N = 20.39 12.18*1.2 = 24.46 N = 25

 $\Delta/\sigma_{\rm s} = ({\rm DCGL\text{-}LBGR})/\sigma_{\rm s}$ $\Delta/\sigma_{\rm s} = (100-50)/42.4$

Total Surface Activity (dpm/100 cm²) Beta

69 105 -171 -197 75 -7 -75 69 53 217 448 389 273	Survey Area - N/A Survey Unit - Exterior Building - T883A Survey Unit Description - Roof and walls a Total Surface Activity Data Sheet DCGL _w 5000 dpm/100 cm ² n 28 Mean 124.3 dpm/100 cm ² Std Dev 196.2 dpm/100 cm ² Std Dev 196.2 dpm/100 cm ² No measurement exceeds the DCGL _w No measurement exceeds 75% of the the Precision Location C ₁ C ₂ C ₁ -C ₂ V-1W 13 -107 120 L-1W 75 -611 686 E-1W 105 -327 432	a - N/A F - Exterior 883A F Descripti ce Activity 5000 28 124.3 196.2 ement exc ement exc C ₁ 13 75 105	xterior A scription - Roof and ctivity Data Sheet 5000 dpm/100 cm² 28 124.3 dpm/100 cm² 196.2 dpm/100 cm² nt exceeds the DCG nt exceeds 75% of the company o	and walls et :m² :m² :m² cGLw of the the 120 686 432	Survey Area - N/A Survey Unit - Exterior Building - T883A Survey Unit Description - Roof and walls and of Trailer T883A Total Surface Activity Data Sheet DCGL _W 5000 dpm/100 cm² No mean 124.3 dpm/100 cm² Std Dev 196.2 dpm/1100 cm² Std Dev 196.2 dpm/1	RPD -255.3191 -255.3191 -389.1892
-122 -122 458	C-2E	-75	97 -468	393	-271.5	
438 -237 366 300	Precision (RPD measurements	PD) is out nts	of specifica	ation due to	Precision (RPD) is out of specification due to low value survey measurements	urvey
356 72	Recalculated N	Z				
30	$\Delta/\sigma_s = (DCGL-LBGR)/\sigma_s$	L-LBGR)/c	ςs			

 $\Delta/\sigma_{\rm s} = (5000-2500)/196.2$ $\Delta/\sigma_s = 12.74$ (default to 3)

Sign p = 0.998650 N = 10.88 10.88*1.2 = 13.05 Survey Area: NA Survey Unit: EXTERIOR Building: T883A

Survey Unit Description

EXTERIOR WAYS

SURVEY SIGNATURE SHEET

Removable /Total Surface Activity Performed By

A.G. PARKOR		(20) Q	2-23-00-00
RCT Printed Name		RCT Signature	Date
M.R. Lauson		MAR	7-29-00
RCT Printed Name		RCT Signature	Date
P. Chitton		6- the	7-29-00
RCT Printed Name		RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date
RCT Printed Name	Employee#	A RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date

Quality Control Measurements Performed By

A.G. PARKER		X Park	2.28.00
RCT Printed Name	<u> </u>	() RCT Signature	Date
RCT Printed Name		RCT Signature	Z . 24 . 00
	_		Date
RCT Printed Name	Employee #	RCT Signature	Date
	1	A	
RCT Printed Name	Employee #	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date

Survey Reviewed By

Red Worse		3/2/00
RCT Foreman Printed Name	RCT Foreman Signature	Date
		RO

Survey Area: NA	Survey Unit: Exterior	Building: T883A
Survey Unit Descriptio	Exterior Walls	

INSTRUMENT DATA SHEET

Removable Contamination Survey Instrument Data

Manufacturer	Eberline	Eberline	Eberline	Eberline	Ebeaune	Ebecuse.
Model	SAC4	BCA	SAC4	BCA	SACH	804
Inst. ID #	1	2	3	4	5	6
Serial #	1170	928	1171	868	1170	928
Cal. Due Date	6.30.00	3.27.00	7-11-00	7-12-00	6-30-00	3-27-00
Analysis Date	2.23.00	2.23.00	2.23.00	2.23.00	7-29-68	7-29-00
Instrument Bkg opm 10-min count time	0.4	42.9	0.4	35.9	0.3	42.4
Instrument Eff (%)	33	25	33	25	33	25
Instrument MDA 2-min count time Apm	9	72.2	9	66.5	8.3	311/6-471.8

Total Surface Activity Instrument Data

ufactur	er	N.E.	Tech.	N.E.	Tech.	N.E.	Tech.	NE	TecH	NET	FICH		
Model		Ele	ctra	Ele	ectra	Ele	ectra	ELEC	rjest	ELEC	TRA		
Inst ID#			7		8		9		0	1	1	1	2
Serial # / P	robe #	2379	1924	1262	805	2385	1931	1370	1/58	2378	1956		
Cal. Due D	ate	8-9	-00	5.3	30.00	6.10	1-00	4.20	.00	5-3	. മയ	N	A
Survey Dat	е	2.23	3.00	2.2	3.00	2.2	8.50	2.2	8.00	2.25	1-00		
Alpha Bkg 90-sec cpm count time	Beta Bkg 90-sec cpm count time	4.7	319	4.5	323	2.0	489	6.0	309	4.0	363		
Alpha Eff (%)	Beta Eff (%)	21.54	30.65	20.6	30.47	21.49	29.94	22.0	30.66	22.35	30.36	edic opension of the control of the	
Alpha MDA 90-sec ± count time	Beta MDA 90-sec pm count time	46.6	227.3	41.9	230.0	33.4 21.76	343.32	50.5	223.7	1317	244.4	The section of the section of	

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Survey Area: NA Survey Unit: Extense Building: 883A

Survey Unit Description

Extense was and Commit Room

				_ <u>-</u>									
Sample location	RCT ID#	Ins	t ID#	Survey c	ount time ec)		AB pm)		Count pm)	4	ounts om)		ctivity 00cm2)
		α	β	α	β	α	β	α	β	α	β	α	β
1-1 NV		8	3	90	90	2, 7	294	12.0	294	9.3	O	45.0	o o
D-3 NW		{	1	90	90	3.3	322	8.7	343	5.4	21	24. 2.	4184 - 12 W
E-1 NW				90	90	5.3	303	11.3	335	6.0	32	29.1	105
E-3 WW				90	90	3 - 3	129	12.0	377	8.7	~52	75, 122900	-171
I-3 WW				90	90	7.0	587	5,7	327	4.7	-60	22.8	-197
L-1 WW)	90	90	11.3	300	14.7	329	3,4	23	16.5 H. 6. 100	75
V-(WW				90	90	š′. 3	363	18.0	367	12.7	4	161.7 Let Street	/3
4-3 EW				90	90	5.3	333	5.3	331	4.0	- 2	19.4	1
c-2 EW				90	90	3.3	336	,0.7	313	7.4	53	35.9	- 75
I-1 EW				90	90	4. 7	277	4.7	298	O	21	0	69
L-3 EW				90	90	7.3	300	12.7	323	5.4	16	210.2	
P.Z EW		V		90	90	ζ, 3	319	4.7	325	-0,6	l.	-2.9	20
T-3 EW		8	8	90	90	2.7	314	26.8	23.5	24.1	i 3	117 110 672	± 43 , e
3-13R		11	***	90	90	7.3	366	24.7	464	22.4	93	100.2	323 38
:-5R		11	1	90	90	4.7	331	27.3	447	22.6	صاحا	101.1	217
C-13R		1)	3 () () () () () () () () () (90	90	5.3	359	29.3	495	24.0	136	107.4	254
D-5R		1)	i)	90	90	2.7	360	31.3	478	28.6	118	128.0	422/1
E-52		1)	13	90	90	3.3	343	30.7	426	27.4	83	122.6	273
E-9R		11	,	90	90	Z.0	366	26.0	440	24.0	74	107.4	244
F-9R		plana c. Henry		90	90	3.	326	58.0	409	24.7	83	110.5	273
F-13R		-	ĝ.	90	90	7.3	469	26.0	432	18.7	-37	83.7	-122
F-14R		H		90	90	11.3	353	76.0	497	14.7	139	65.8	458
F-20R		11	11	90	90	4.0	469	30.7	397	24.7	-72	119.5	- 237
G-108		1 Ì	_11	90	90	3.3	344	32.0	455	28.7	111	128.4	366
5-14R		11	11	90	90	3.3	315	24-7	406	21.4	વા	95.7	300
G+16R		1.)	1	90	90	6.0	332	25.3	440	19.3	103	86.4	356
4-5e		1)	Section 1975	90	90	4.0	364	16.7	386	12.7	77	99	175
H-13R		11	11	90	90	6.0	444	18	453	12.0	9	113.4	30_
<u>V-1-WQC</u>		9	9	90	90	2.0	403	5.3	371	3.3	-32	15.4	- 107
L-1-NQC				90	90	2.7	511	6.0	328	3.3	-183	15.4	-611
=1-MDC			1	90	90	5.3	435	10.0	337	4.7	-98	21.9	-327
FIFOC		l l	1	90	90	6.0	292	8.7	321	2.7	29	12.6	96.93
-2. £QC		9	9	90	90	3.3	469	9.3	329	16	-140	27.9	-467.6

Note: QC measurements are to be collected by a different technician than the original survey. Mark the QC location number in the "Sample Location" column. Material background is assumed to be zero unless otherwise noted. "LAB" ~ local area background.

Page 3 of 5

Survey Area: NA Survey Unit: Exterior Building: T883 A
Survey Unit Description Exterior WAUS

Sample Location	RCT ID#	Ins			Counts pm)		Counts pm)		ole Activity 100cm2)
		_α	β	α	β	α	β	α	ß
C.Z.E		1	2	.5	40	1	-2.9		-11.6
I.I.E			4			- ,4-	6.1 0	0.3	
1.3.E		2	2	9	44		81	-1.2	32.4
P.2.E		1	1		42	.6		1.8	- 3.6
T.3.E		3-3-	4 2	.5	32.5	•	3.4	0.3	13.6
4.1.N		1		2.5	39.5	2.1	-3.4	6.366.4	-13.6
-		3	4 2		42	.6	6.1	1.8	24.4
E.I.N		1			41	.6	-1.9	1.8	-7.6
D.3.N		3	4 2	.5	42.5	• •	6.6	0.3	26.4
A-3-W		3		.5	40 34.5		-2.9	0.3	-11.6
F.3.W		5	4	0	34.5	4	-1.4	-1.2	-5.6 -37.6
T. I.M		3 -3	2		33.5	.6	-9.4	1.8	-37.6
1.3.W		<u>ح</u>	4	.5	41.5	•	5.6	0.3	22.4
V-1-M		1	$ \mathcal{V} $	6	35.5	4	-7.4	-1.2	-29.6
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25/6

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3-246

Survey Area: NA Survey Unit: Extended Building: T883A

Survey Unit Description

Extended Roof

Sample Location	RCT ID#	Ins	#	Gross ((gc)	om)	1	Counts cpm)		ble Activity /100cm2)
		α	β	α	β	α	β	α	β
-18R		5	(0.0	33	-0.3	-114	- 0.91	- 17.6
-5R		5	6	C.0	38.5	E.C-	- 3.9	- 0.91	- 15.6
-13R		5		1.0	32.5	0.7	34-399	7.1	- 159.60
-5R		5	<u> </u>	1.0	36	7.0	- 6.4	7.1	- 25.6
-5R		5	6	0.0	34	-0.3	- 3.4	- 0.91	- 33.6
-9R		พพพพพพ	ا حا	1.0	38.2	3.7	-39	7.1	- 15.6
-9R		5	اما	0.0	39	-3.3	-3.4	- 0.91	- 13.6
=-13R		5	اما	1.5	38.5	1.2	-39	3.6	- 15.6
F-14R		5	ايا	0.5	32.5	0.2	- 9.9	0.6	- 39.6
=-20R		5	6	1.5	39	1.2	- 3.4	36	- 13.6
2-10 P		5	(n)	0.5	32.5	5.0	- 9.9	0.6	- 39.6
5-14R		5	ل کا	1.5	32.5	1.2	- 9.9	3,6	- 39·L
5-16R		5	حا	0.0	38	-0.3	- 4.4	- 0.91	- 17.6
1-5R		S	ا جا	0.5	33	0.2	-9.4	0.6	- 37.6
4-13R		S	ص ا	0.0	36	-0.3	- 6.4	- 0.91	- 25.6
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Page <u>5</u> of <u>15</u>

Survey .		N	Q	Survey Ur	nit: EX	TERIO	R	Building: 188	3 A
Survey	Unit Des	cription:		xterior V	NMI	C			
Т		El	ectra DP-6 Be	eta v	ALC		Electra D	P-6 Alpha	
Loc. ID#	RCT ID#	Inst. ID#	Elevated Audible observed? "Y" or "N"	60-sec PAT (dpm/100cm2)	RCT ID#	Inst. ID#	4-sec Audible observed? "Y" or "N"	30-sec Static (gcpm)	90-sec PAT (dpm/100cm ²)
1.IW.5		7	N	NA		7	Υ	4	N/A
0.IW.4		7	N			7	Y	6	
L.IW.3		4	N			7	У	2	
J. IW.2		7	N			7	N	N/A	
A.IW. 1		4	N			7	N		
MI.H		7	N			1	Ν	V	
E.IN .2		4	N			7	N	N/A	
A.IN.1		7	N			7	Y	8	
W.1E.5		7	N			7	N	NA	
S.1E.4		1	N			7	N		
K.IE.3		1	N		11111111111	7	N		
I.1E.2		7	\mathcal{N}			7	N		
C.IE.I		4	N			7	N		
H.15.4		7	\mathcal{N}			7	\mathcal{N}		
D.15.Z		7_	N			7	N		
E.15.3		7	N			7	N	,	
E.15.3 A.15.5		4	N	NA		7	N	N/A	NA
A.15.1		7	N	N/A		7	N	N/A	NA
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						A			
								<u> </u>	



Rev. 020900

Current Arran	Common Unit	(Dullding)
Survey Area:	Survey Unit: EXTERIOR	Building: 7883A
Survey Unit Description:	terior Walls	
RCT Initials/Date: Q 2/23/00	RCT Initials/Date: NA	RCT Initials/Date: NA
	Investigation Survey Form for instrumentation,	•
Legend: "R"- Roof, "W"-	West Wall, "S" - South Wall, "E" - Eas	t Wall, "N" - North Wall
	(3) (1)	
*	*	
T-1-W	H	-1-N
\bigcirc		(F)
		(5)
E-I-N	\\\\-\	-1-E
	• • • • • • • • • • • • • • • • • • • •	

* Designates corner closest to A-1 poin	t of reference	

Results/Comments:

Electra alpha scans were performed at the locations detailed on the survey map(s). All required accessible areas were scanned. All initial scan results were <225 dpm/100cm², unless noted on the survey form.

Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the survey form.

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	<i>y</i> ,	1
Survey Area:	Survey Unit: EXTERIOR	Building: T883 A
Survey Unit Description:	erior Wall	
ma 123, 140	RCT Initials/Date: NA	RCT Initials/Date: NA
Refer to the Final Survey NE Electra Scan & I		
Legend: "R"- Roof, "W" - V	Vest Wall, "S" - South Wall, "E" - Ea	st Wall, "N" – North Wall
	(2)	
* A./.W	*	- W
7.7.00	J · .	
(3)		4)
*	*	
L-1-W	0-	1-W

* Designates corner closest to A-1 point of reference Results/Comments:

Electra alpha scans were performed at the locations detailed on the survey map(s). All required accessible areas were scanned. All initial scan results were <225 dpm/100cm², unless noted on the survey form.

Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the survey form.

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Survey Area:	Survey Unit: EXTERIOR	Building: T883 A
Survey Unit Description: Exterior	10/0/14	7,000,
123 /314h	RCT Initials/Date: NA	RCT Initials/Date: NA
	vestigation Survey Form for instrumentation, su	
Legend: "R"- Roof, "W" - W	Vest Wall, "S" - South Wall, "E" - East	Wall, "N" – North Wall
4	(3))
* 5-1-E	*	
5-1-6	K-1	1 - E
		a contraction
X I-1-E	C-1-	Г.
1-1-1	(-1-	
* Designates corner closest to A-1 point	of reference	

Results/Comments:

Electra alpha scans were performed at the locations detailed on the survey map(s). All required accessible areas were scanned. All initial scan results were <225 dpm/100cm², unless noted on the survey form.

Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the survey form.

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Survey Area:	Survey Unit:	EXTERIÓN	Building: T883A
Survey Unit Description:	Survey Unit:	1411	7 000 7
RCT Initials/Date RCT Initials/Date	23 July RCT Initials/Da		RCT Initials/Date: NA
			surveyor & approval information.
Legend: "R"- Roof	, "W" – West Wall, "S"	- South Wall, "E" - Ea	st Wall, "N" - North Wall
	(4)(S)	2	
X		*	
H	~ <u>,</u>	D-	1-5
	(3)		
*		*	
E-1	- 2	A -	1-5
Designates corner closest to	A-1 noint of votorones		

Results/Comments:

Electra alpha scans were performed at the locations detailed on the survey map(s). All required accessible areas were scanned. All initial scan results were $<225 \text{ dpm}/100 \text{cm}^2$, unless noted on the survey form.

Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the survey form.

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Survey Area:	Survey Unit:	Building: TOO21
Survey Unit Description:	EXTERIOR	T883A
23 james	terior WALLS	
RCT Initials/Date(1) 2/24/00	RCT Initials/Date: NA	RCT Initials/Date: NA
Refer to the Final Sulvey NE Electra Scan & I		
Legend: "R"- Roof, "W" - V	Vest Wall, "S" – South Wall, "E" – Ea	st Wall, "N" – North Wall
	N	
* A-1-N		
A-1-N		
N /	Λ.	1
A		
		A
* Designates corner closest to A-1 point	of reference	

Results/Comments:

Electra alpha scans were performed at the locations detailed on the survey map(s). All required accessible areas were scanned. All initial scan results were <225 dpm/100cm², unless noted on the survey form.

Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the survey form.

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Survey	Area:			Survey U				Building:	
Survey	Unit Des	crintion:	4		KTERIUR			7-88	3 A
			€ * ectra DP-6 Be	ranion W.	ALL.	Q C	SCANS		
Loc.		Ele	ectra DP-6 Be	eta		Electra DP-6 Alpha			
ID#	RCT ID#	Inst. ID#	Elevated Audible observed? "Y" or "N"	60-sec PAT (dpm/100cm2)	RCT ID#	Inst. ID#	4-sec Audible observed? "Y" or "N"	30-sec Static (gcpm)	90-sec PAT (dpm/100cm ²)
NW E-1- N		10	N	NA		10	У	8,0	NA
E-INZ		10	~	~4		10	У	10.0	NA ·
E-183		10	~	<u> </u>		10	У	14.0	NA
2-141		10		NA		10	У	12.0	WA
1-162		10	\sim	NA		10	У	10.0	NA
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<i>Y</i>									

3-254

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Survey Area:	Survey Unit:	Building:
Survey Unit Description:	Exterior	T-883A
	TERMS WALLS CO	- Schus
RCT Initials/Date: / 2-28-60	RCT Initials/Date: NA	RCT Initials/Date: NA
Refer to the Final Survey NE Electra Scan &	Investigation Survey Form for inst	rumentation, surveyor & approval information.
Legend: "R"- Roof, "W"-	West Wall, "S" – South Wall "C" –Ceiling, "F" - Flo	, "E" - East Wall, "N" - North Wall
Nurse ware		wegt wall
E-IN		
		L-1W
0	(D)	
(3)		0
		(2)
*		
NA		M

* Designates corner closest to A-1 point of reference Results/Comments:

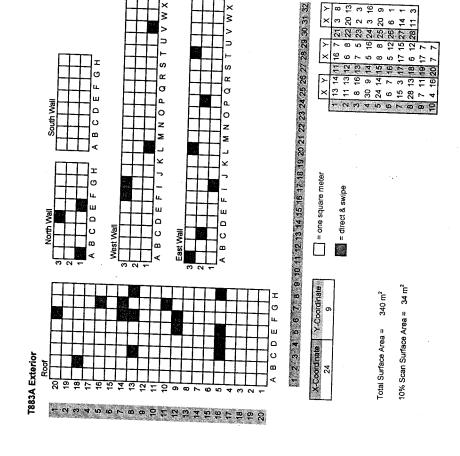
Electra alpha scans were performed at the locations detailed on the survey map(s). All required accessible areas were scanned. All initial scan results were <225 dpm/100cm², unless noted on the survey form.

Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the survey form.



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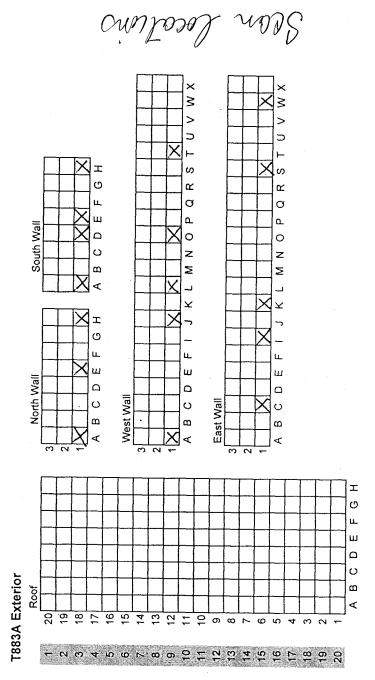
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Package ID: 2000-01 Building: T883A Survey Unit: Exterior

97/242 RU

Package ID: 2000-01 Building: T883A Survey Unit: Exterior



Survey Area: 🚜		£ 70 /2 10 /4	Building:	7-8834
Survey Unit Description	n			
	direction of the second	A		

SURVEY SIGNATURE SHEET

Removable /Total Surface Activity Performed By

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	SIMIL	3:3:00
	RCT Signaturé	Date
		Mark State
⊏mployee #	RCT Signature	Date
	and the second second second	
Employee #	RCT Signature	Date
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Employee #	N RCT Signature	Date
Carlot and Burgary of the State		
Employee #	RCT Signature	Date
Employee #	RCT Signature	Date
Employee #	RCT Signature	Date
	Employee # Employee # Employee #	Employee # RCT Signature Employee # RCT Signature Employee # RCT Signature Employee # RCT Signature

Quality Control Measurements Performed By

RCT Printed Name	Employee #	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date
	and the second s		
RCT Printed Name	.Employee #	RCT Signature	Date
	(2)		
RCT Printed Name	Employee #	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date

Survey Reviewed By

Res Worden		3/4/20
RCT Foreman Printed Name	RCT Foreman Signature	Date

Survey Area:	_√ Survey Unit	Extense.	Building:	7-883 A
Survey Unit Desc	ription			
	THE THE STATE OF	Aug.		

INSTRUMENT DATA SHEET

Removable Contamination Survey Instrument Data

Manufacturer						
Model					and the second s	And the second s
Inst. ID #	1	2	3	4	Survey 5 miles	6
Serial #				and the second s		
Cal. Due Date				and the same of th		
Analysis Date			A			
Instrument Bkg opm 10-min count time		and the same of th	A			
Instrument Eff (%)		a state of the sta				
Instrument MDA 2-min count time dpm						

Total Surface Activity Instrument Data

nufactur	er	N.E.	Tech.	N.E.	Tech.	N.E.	Tech.					-	
Model		Ele	ctra	Ele	ectra	Ele	ctra					grave services	
Inst. ID#			7		8		9	1	0	1	1	, zw ^a	12
Serial # / P	robe #	1395	1368										
Cal. Due D	ate	7.19						P	James and the second				
Survey Dat	e	3 - 3	6.13						W				
Alpha Bkg 90-sec cfm count time	Beta Bkg 90-sec count time	4.7	431				and the state of t						
Alpha Eff (%)	Beta Eff (%)	21.03	24.83			part to the same of the same o							
Alpha MDA 90-sec count time	Beta MDA 90-sec count time	u1-4											

(doublevent) (doublevent)

Page ____ of ____

3-259



Survey	Area:			Survey Ur	nit:			Building:	
C	Survey Unit Description:					FX782102 T-86314			
Survey	Exterior Walls								
	Electra DP-6 Beta				Electra DP-6 Alpha				
Loc. ID#	RCT ID#	Inst. ID#	Elevated Audible observed? "Y" or "N"	60-sec PAT (dpm/100cm2)	RCT ID#	Inst. ID#	4-sec Audible observed? "Y" or "N"	30-sec Static (gcpm)	90-sec PAT (dpm/100cm ²)
14-2N		- 1	~	NA		f	У	10.0	дiд
H-2 111		ŧ	N	,υ A		- del	У	18.0	N'A
11.251	-	l'	A	NA			У	· 4,0	NA
D-251		1	Ν	N 4		. 1	y	6.0	n'.a
F-251		(ν	NA		1	У	8.0	N.A
C- 2 E		1	سر	NA		1	Д.	, A/A	NA
F-281		!	N	4ر نبر		Capple.	>	8.0	μ.Α
K-281	-	1	y wash	7~1 Bz		2,504	у	16.0	ه.به
K-2 E Z	_		pw)	green Alle			ý	8.0	* p. i A
K-2 & 3		,	<u>,,,</u>	NA W		1	y	16.0	NA
R-ZEI	-			. N. A.		1	. y	8.0	NA.
W-ZÉI		,	<u> </u>	· NA			-7	6.0	NA.
14.2 W		١.	μ	NA		- deriver	ν	,UA	N/A
4-5m		1		<u> الإنزاز</u> -	-	1	N	MA	NA.
I-ZWI	•	1	- N	NA	-	å	У	8.0	NA .
1-201		1	, jul	N A			y	8.0	NA.
L-2w2		ì	ا اس	NA		rano.	<u> </u>	17.0	A.A
5-2w	_	1	<u>~</u>	N/F		cognet	N	NA	NA
V-Zw.	_	\	N	. 25.04		-	У	6.0	, NA
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Rev. 020900

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Survey Area:	NA	Survey Unit:	Building:
Survey Unit D	Pescription:	Extensor wars	1-34-314
RCT Initials/F	Date: /144 / 3.3 00	RCT Initials/Date:	RCT Initials/Date:
			mentation, surveyor & approval information.
		West Wall, "S" - South Wall,	"E" - East Wall, "N" - North Wall
		"C" -Ceiling, "F" - Floo	o r
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Results/Comments:

Electra alpha scans were performed at the locations detailed on the survey map(s). All required accessible areas were scanned. All initial scan results were <225 dpm/100cm², unless noted on the survey form.

Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the survey form.

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Page of

* Designates corner closest to A-1 point of reference

Survey Area:	5	Survey Unit:	Building:	
Survey I Init D	No parametria no	£47816362	7-883 A	
Survey Unit D	•	KTERROUG GUALLS .		
D.OTT.	è			
	, , , , , , , , , , , , , , , , , , , ,	RCT Initials/Date:	RCT Initials/Date:	
			entation, surveyor & approval information.	
Leg	end: "R"- Roof, "W" - W	est Wall, "S" - South Wall, "F	E" - East Wall, "N" - North Wall	
		"C" -Ceiling, "F" - Floor		
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	L C			
*				
	K-2 &		R-2 E	
	(Com			
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	(3)		\mathcal{O}	
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Results/Comments:

Electra alpha scans were performed at the locations detailed on the survey map(s). All required accessible areas were scanned. All initial scan results were <225 dpm/100cm², unless noted on the survey form.

Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the survey form.



* Designates corner closest to A-1 point of reference

Survey Area:		Survey Unit:	Building:
	MA	Exterio	7-453.4
Survey Unit Des			
	\$	KINNING WALLS	
RCT Initials/Da	te: /buc /3.3.00 F	RCT Initials/Date:	RCT Initials/Date:
Refer to the Final	Survey NE Electra Scan & In	vestigation Survey Form for	instrumentation, surveyor & approval information.
Leger	nd: "R"- Roof, "W" - W	est Wall, "S" – South W "C" –Ceiling, "F" -	all, "E" – East Wall, "N" – North Wall
		c –cening, F –	Floor
	NI-ZE		I-2 w
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	, and		and the same of th
-	L-2 w		5m V-2 W
	0		
		(E)	\mathcal{C}
		Manual	
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		* !*	

Results/Comments

Electra alpha scans were performed at the locations detailed on the survey map(s). All required accessible areas were scanned. All initial scan results were <225 dpm/100cm², unless noted on the survey form.

Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the survey form.

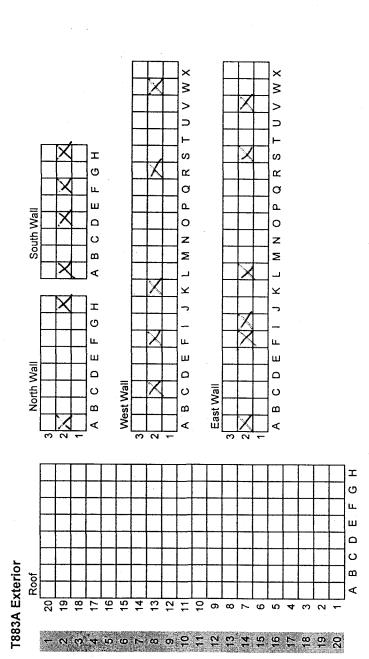
213

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Page of

* Designates corner closest to A-1 point of reference

Package ID: 2000-01 Building: T883A Survey Unit: Exterior



t. Pt

190-E

Survey Area: NA Survey Unit: EXTERIOR Building: 7 983 A

Survey Unit Description

ROOF 9 PT INVESTIGATION SCAN

SURVEY SIGNATURE SHEET

Removable /Total Surface Activity Performed By

	1		
P.CHITTUM		P. chille	3-3-00
RCT Printed Name		RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date
			Bato
RCT Printed Name	Employee #	RCT Signature	Date
RCT Printed Name	Employee#	RCT Signature	Date
	A Section of the Sect		
RCT Printed Name	Employee #	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date

Quality Control Measurements Performed By

·			
RCT Printed Name	Employee #	RCT Signature	Date
		and the state of t	
207.0			. •
RCT Printed Name	Employee #	RCT Signature	Date
	(N)		
	- W		
RCT Printed Name	Employee #	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date
		•	
RCT Printed Name	Employee #	RCT Signature	Date

Survey Reviewed By

	·	Z BADN 1	
Por Werster			34-60
RCT Foreman Printed Name	Litipioyeen	RCT Foreman Signature	Date

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Survey Area: NA Survey Unit: EXTERIOR Building: **Survey Unit Description** ROOF 9 PT. INVESTIGATION

INSTRUMENT DATA SHEET Removable Contamination Survey Instrument Data Manufacturer Model Inst. ID# 1 2 3 4 5 Serial # Cal. Due Date Analysis Date Instrument Bkg opm 10-min count time Instrument Eff (%) Instrument MDA 2-min count time dom **Total Surface Activity Instrument Data** маnufacturer N.E. Tech. N.E. Tech. N.E. Tech. Model Electra Electra Electra Inst. ID# 9 12 8 10 11 Serial # / Probe # 1921 Cal. Due Date 8-23-00 Survey Date 3-3-00 Alpha Bkg Beta Bkg 90-sec *срм* 90-sec cpm count time 2.7 count time 462

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Alpha Eff

Alpha MDA 90-sec

count time

(%)

Beta Eff

Beta MDA 90-sec dym

count time

20,46 29.70

39.3 281.0

(%)

Final Survey NE Electra Scan & Investigation Survey Form (Continuation Sheet)

			(//)	Survey U				Building:	3 /
Survey	Unit Des	cription:	<u> </u>			ERIC		T88	
		P	ROO	F 9	PT	INV	ESTIGA	TION 5	CAN
***************************************		Ele	ectra DP-6 B	eta	1		Electra D	TION 5. P-6 Alpha	
Loc. ID#	RCT ID#	Inst. ID#	Elevated Audible observed? "Y" or "N"	60-sec PAT (dpm/100cm2)	RCT ID#	Inst. ID#	4-sec Audible observed? "Y" or "N"	30-sec Static (gcpm)	90-sec PAT (dpm/100cm ²)
F-20R1						7			20.0
C-20R2			· · · · · · · · · · · · · · · · · · ·		_	_7_			25.3
F-20R3						7_		/-	20.0
F-20R4			X/			7	1	//	26.0
F-20 R 5			A			7_		A	28.0
E-20R É			, , .			7			17-3
E-20R7		_				7			23.3
F-20R8						7	/	<	25.3
T-20R9	/					7	/		20.31
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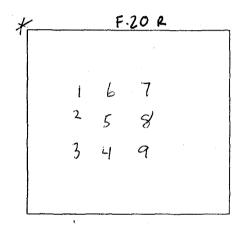
3-267 c:\Final Survey\DPElectraSurvey020900.doc

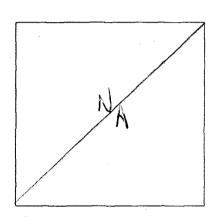
 $_{\text{Page}} \underline{3}_{\text{of}} \underline{5}$

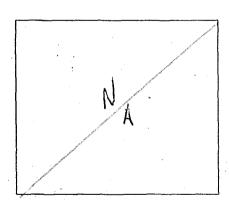
Survey Area:	Survey Unit:	Building:
NA	EXTERIO	R T883A
Survey Unit Description:		
ROOF 9	PT INVESTA	GATION SCAN
	•	

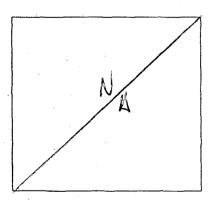
Refer to the Final Survey NE Electra Scan & Investigation Survey Form for instrumentation, surveyor & approval information.

Legend: "R"-Roof, "W" - West Wall, "S" - South Wall, "E" - East Wall, "N" - North Wall "C" - Ceiling, "F" - Floor









* Designates corner closest to A-1 point of reference

Results/Comments:

Electra alpha scans were performed at the locations detailed on the survey map(s). All required accessible areas were scanned. All initial scan results were <225 dpm/100cm², unless noted on the survey form.

Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the survey form.

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tage ID: 2000-01 Building: T883A Survey Unit: Exterior

× × × \supset I S S ග ĸ α u. Ø Ø ш ۵ ۵ South Wall ۵ 0 0 O z z ∑ Σ ω ж --¥ I ග LL ц. ш ш ш North Wall Ω ۵ ۵ West Wall ပ East Wall ပ ပ A B A B A B ഗ ш, ш Ω ပ **T883A Exterior** ά

9- point INVESTIGATION

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Survey Area: NA	Survey Unit: Ext Building: 1983A	
Survey Unit Descriptio	1 of Specific Locations	

SURVEY SIGNATURE SHEET

Removable /Total Surface Activity Performed By

M LAWSON RCT Printed Name		RCT Signature	3/8/00 Date
DOT Drinted Marris			
RCT Printed Name	Employee #	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date
		NA	
RCT Printed Name	Employee #	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date
· · · · · · · · · · · · · · · · · · ·			
RCT Printed Name	Employee #	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date

Quality Control Measurements Performed By

RCT Printed Name	Employee #	RCT Signature	Date
:			
RCT Printed Name	Employee #	RCT Signature	Date
RCT Printed Name	MA Employee #	RCT Signature	Date
	and the same of th		
RCT Printed Name	Employee #	RCT Signature	Date
			-
RCT Printed Name	Employee #	RCT Signature	Date

Survey Reviewed By

Row Worsten	-	<u> </u>	313-00
RCT Foreman Printed Name		RCT Foreman Signature	Date
and the second s			

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Survey Area: NA	Survey Unit: Ext Building: 7883A
Survey Unit Description	u
Verification	LOF Specific Locations

INSTRUMENT DATA SHEET Removable Contamination Survey Instrument Data Manufacturer Model Inst. ID# 2 6 Serial # Cal. Due Date Analysis Date Instrument Bkg 10-min count time Instrument Eff (%) Instrument MDA 2-min-eount time **Total Surface Activity Instrument Data** nufacturer N.E. Tech. N.E. Tech. N.E. Tech. Model Electra Electra Electra Inst. ID# 8 9 10 11 12 Serial # / Probe # 1395 1368 Cal. Due Date 7-19-08 Survey Date 3-8-00 Alpha Bkg Beta Bkg 90-sec 90-sec 366 2.0 count time count time Alpha Eff Beta Eff 20.89 28.68 (%) (%) Alpha MDA Beta MDA 34.4 259.7 90-sec 90-sec



count time

count time

Survey Area: NA Survey Unit: EXTERIOR Building: T883A

Survey Unit Description

VERIFICATION OF SPECIFIC LOCATIONS

Sample	RCT	Inc	st ID#		Surfa				•	Shee	t		
ocation	ID#			Survey (:	count time sec)		LAB (cpm)		s Count (cpm)	Net o	counts pm)	Net	Activity
Fac		α	β	α	β	α	β	α	β	, α	β	(apm	/100cm2)
-3E		7	7	90	90	2.0	349	4.0	388	2.0	39	9.6	/36
	.	ļ		90	90						-	1.6	/36
				90	90							 	
		ļ		90	90			 	<u> </u>				
			,	90	90					-		-	1
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				90	90	4	1	-					
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QC		4		90	90								
QC QC	/			90	90								•
QC/				90	90							,	
<u>ac</u>				90	90								-
_				90	90							-	
QC				90.	90 ected by a								

Note: QC measurements are to be collected by a different technician than the original survey. Mark the QC location number in the "Sample Location" column. Material background is assumed to be zero unless otherwise noted. "LAB" ~ local area background.

Page 3 of 3

Survey Area:	Survey Unit: Extract Building	
Survey Unit Description	The second secon	· · · · · · · · · · · · · · · · · · ·
	Rose Samples Common	

SURVEY SIGNATURE SHEET Removable /Total Surface Activity Performed By 3-28-00 RCT Printed Name RCT Signature Date PARKER RCT Printed Name **RCT Signature** Date **RCT Printed Name** Employee # RCT Signature Date RCT Printed Name RCT Signature Date **RCT Printed Name** Employee # RCT Signature Date RCT Printed Name Employee # **RCT Signature** Date RCT Printed Name Employee

Quality Control Measurements Performed By

RCT Signature

Date

not ritueu Name	Employee #	RCT Signature	Date
			* *
RCT Printed Name	Employee #	RCT Signature	Date
	/	Λ	800 880 600
RCT Printed Name	Employee#	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date

Survey Reviewed By

SGERNAM	Municipality	\$ 3-29-00
RCT Foreman Printed Name	RCT Foreman Signature	Date

		· ·	· ·	•	
Survey Area:	NA	Survey Unit:	ERIOR.	Building:	3A
Survey Unit D	Description:	Sample Loca		<u> </u>	
RCT Initials/I	Date: NA 3-18.00 I	•	JA.	RCT Initials/Date	: NA
	al Survey NE Electra Scan & In		or instrumentation, s	surveyor & approval inf	ormation.
Leg	gend: "R"- Roof, "W" – W	est Wall, "S" – South "C" –Ceiling, "F"		t Wall, "N" - North	Wâll
		J.			
	F-202		H-	SR	
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	NA			A	
		/			

* Designates corner closest to A-1 point of reference Results/Comments:

& SAMPLE CUTOUT

Electra alpha scans were performed at the locations detailed on the survey map(s). All required accessible areas were scanned. All initial scan results were <225 dpm/100cm², unless noted on the survey form.

Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the survey form.



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Survey Area: NA	Survey Unit:	Exterior	Building: T883A	
Survey Unit Descript	tion			
	Roof Sample Locat	ion		

INSTRUMENT DATA SHEET

Removable Contamination Survey Instrument Data

	•••					
Manufacturer	EBERLINE	EBERLINE	EBERLINE	EBERLINE		
Model	SAC4	BC4	SAC4	BC4		
Inst. ID #	1	2	3	4	5	<i>j</i> 6
Serial #	823	966	1171	868		
Cal. Due Date	9/6/00	9/15/00	7/11/00	7/12/00		
Analysis Date	3/28/00	3/28/00	3/28/00	3/28/00		-
Instrument Bkg. 10-min count time	0.5	42.9	0.3	35.2		A -
Instrument Eff (%)	33	25	33	25	/	
Instrument MDA 2-min count time	9.6	72.2	8.3	65.9	/. #DIV/0!	#DIV/0!

Total Surface Activity Instrument Data

Manufact	urer	N.E.	Гесh.	N.E.	Гесh.	N.E.	Гесh.	N.E.	Tech.			phr start st	
Model		Elec	etra	Elec	ctra	Elec	ctra	Ele	ctra		je produce se		
Inst. ID #		7	7	ω.	3	(9	1	0	1	1	1	2
Serial # / F	Probe #	2374	1919	2376	1921								
Cal. Due D	ate	9/8	/00	8/23	3/00					and the second second			
Survey Da	ite	3/28	3/00	3/28	3/00								
	Beta Bkg 90 sec count time	4.7	406	3.3	407								
Alpha Eff (%)	Beta Eff (%)	20.85	29.89	20.46	29.7		age of the state of						
90-sec	Beta MDA 90-sec count time	48.2	262	42.6	264	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!



Survey Area: NA	Survey Unit:	EXTERIOR	Building: T883A	
Survey Unit Description	on			
	ROOF SAMPLE LOCA	TIONS		

			Tot	al Su	ırfac	e A	ctivi	ty D	ata	She	et		
Sample Flocation	RCT ID	Inst ID #		Survey count time (sec)		Gross Count (gcpm)		LAB (cpm)		Net counts (cpm)		Net Activity (dpm/100cm2)	
		α	β	α	β	α	β	α	β	α	β	α	β
PRE				90	90					0.0	0	0.0	0
F-20R		7	7	90	90	26.0	500	4.7	449	21.3	51	102.2	171
POST				90	90					0.0	0	0.0	0
F-20R		7	7	90	90	29.3	445	3.3	400	26.0	45	124.7	151
PRE				90	90					0.0	0	0.0	0
F-20RQC		8	8	90	90	25.3	543	3.3	407	22.0	136	107.5	458
POST				90	90					0.0	0	0.0	0
F-20RQC		8	8	90	90	24.0	528	8.0	444	16.0	84	78.2	283
PRE				90	90					0.0	0	0.0	0
H-5R		7	7	90	90	19.3	417	4.0	390	15.3	27	73.4	90
POST				90	90			_		0.0	0	0.0	0
H-5R		7	7	90	90	22.7	435	9.3	401	13.4	34	64.3	114
				90	90					0.0	0	0.0	0/
				90	90					0.0	0	0.0	0
				90	90					0.0	0	0.0	0
				90	90					0.0	0	0.0	0
				90	90					0.0		0.0	0
				90	90					0.0	0	0.0	0
				90	90		1			0.0	0	0.0	0
				90	90	N				0.0	0	0.0	0
				90	90	Λ	\mathcal{V}_{-}			0.0	0	0.0	0
				90	90	7				0.0	0	0.0	0
				90	90					0.0	0	0.0	0
				90	90					0.0	0	0.0	0
				90	90		γ			0.0	0	0.0	0
				90	90					0,0	0	0.0	0
			1	90	90					0.0	0	0.0	0
				90	90					0.0	0	0.0	0
QC				90	90					0.0	0	0.0	0
QC				90	90					0.0	0	0.0	0
QC				90	90					0.0	0	0.0	0
ge				90	90					0.0	0	0.0	0
QC				90	90					0.0	0	0.0	0

Note: QC measurements are to be collected by a different technician than the original survey. Mark the QC location number in the "Sample Location" column. Material background is assumed to be zero unless otherwise noted. "LAB" \sim local area background. Page $\frac{4}{2}$ of $\frac{5}{2}$



Survey Area: NA Survey Unit: EXTERIOR Building: T883A
Survey Unit Description ROOF SAMPLE LOCATIONS

		Re	emo	vable C	ontami	nation	Data SI	neet		
	T ID	Inst ID		Gross Counts	(gcpm)	Net Counts (cpm)		Removeable Activity (dpm/100cm2)		
		α	β	α	β	α	β	α	β	
PRE						0	0	0.0	0	
F-20R		1	2	1	47.5	0.5	4.6	1.5	18	
POST						0	0	0.0	0	
F-20R		3	4	0	33	-0.3	-2.2	-0.9	-9	
PRE						0	0	0.0	0	
-20RQC		1	2	1	39	0.5	-3.9	1.5	-16	
POST						0	0	0.0	0	
-20RQC		3	4	0	49.5	-0.3	14.3	-0.9	57	
PRE						0	0	0.0	0	
H-5R		1	2	1.5	43.5	1	0.6	3.0	2	
POST						0	0	0.0	0	
H-5R		3	4	1	41	0.7	5.8	2.1	23	
						0	0	0.0	0 /	
						0	0	0.0	Ø	
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SURVEY PACKAGE COVER SHEET

Package ID: 2000-01	Building: T883B	- way way was a second of the				
Survey Area: Not Applicable	Survey Unit: Interior					
Survey Unit Description: This trailer was constructed/assembled at this site, Cedar Avenue and Eighth Street, directly east of Building 883, in1983. The size of this trailer is approximately 28' X 70' and it is assembled from 2 trailer units of approximately 14' X 70' feet in size.						
Building Information:						
Survey Type: Reconnaissance Level Characterization	Survey Final Status Survey X					
Building Type: Type 1 X Type 2 □ Type 3 □						
Classification: Class 1 Class 2 Class 3 X Unk	nown 🗆					
Contaminants of Concern: Plutonium X Uranium X	Other 🗖					
Justification for Classification: This facility has contamination.	as no known history of radiolo	ogical				
Special Support Requirements: Ladder, mand instrumentation may be required for surveying upper walls and ceilings on the interior and upp	in overhead areas. Overhead a					
Special Safety Precautions: Access to overhe caution when working in overheads.	ad areas may require additiona	al controls. Use				
Isolation Controls:						
Level 1 Level 2 X N/A						
Labeling Requirements: The location where f be marked using a sticker or a marker and then						
Survey Package Implementation:		APPL APPL APPL APPL APPL APPL APPL APPL				
	\sim					
RICK ROBERTS	See See Mil	1/43/00				
	diological Engineer Signature	Date				
	/A	N/A				
	FS Manager Signature	Date				
H. B. ESTABROOKS		1/3/12				
RESS Manager Printed Name Survey Package Closure:	SS Manager Signature	Date				
		8/8/10				
RESS Radiological Engineer Printed Name	SS Radiological Engineer Signature	Date				
NOT APPLICABLE	/A	N/A				
REFS Manager Printed Name	FS Manager Signature	Date				
H. B. ESTABROOKS	A Mohous	8/3/00				
RESS Manager Printed Name	SS/Manager Signature	Date				

8/3/00

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SURVEY PACKAGE TRACKING FORM

Package ID: 2000-01		Building: T883B					
Survey Area: Not Applica	able	Survey Unit: Interior	The state of the s				
Initiator/ Date	Release Date	Validation Date	Closure Date				
MAN (18110)	11 4 1 100	1877 B. S. Jan	HAME BIE 100				
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		and the second s					
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SURVEY PACKAGE CORRECTION/CHANGE HISTORY FORM

Package ID:	2000-01	Building: T883B					
Survey Area:	Not Applicable	Survey Unit: Inter	ior	- 1			
Change #	Description		Initiator/ Date	PRE			
1	Person in a compa po	and the training	1111 21110	APSE_			
	1024-301-35 Likel	218110					
	A comment of the state of the s	i ngga go e go Litar 61 day	All zines				
	Per - Marin Sand	26.124					
3	Cowetel Scan requirement		KONY /6-20-50				
	U U						
·							
		- 11.1					
		- 49 (64)					

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INITIAL SURVEY PACKAGE DESIGN FORM

Package ID: 200	0-01	Building: T883B		Type: 1					
Survey Area: No	t Applicable	Survey Unit: Inte	erior	Area (m ²): 662					
Eighth Street, o	lirectly east of B	ler was construc building 883, in1 om 2 trailer units	983. The size of	this trailer is app	proximately				
Survey Type:	The state of the s	7-14 - 14-14 -	Classification:						
RLC Survey □	FSS X			2 □ Class 3 X Un	known 🗆				
Random/Uniform Surface Activity Measurements	Biased Surface Activity Measurements	Equipment Surface Activity Measurements	Media Samples	Volumetric Samples	Surface Activity Scans				
28	0	0	0	0	Biased				
Building:		Type:	The state of the s	Survey Area:					
Survey Unit:		***	Area (m²):	**************************************					
Survey Unit Description:									
Survey Type:			Classification:	The state of the s					
RLC Survey □	FSS □		Class 1 Class 2 Class 3 Unknown						
Random/Uniform Surface Activity Measurements	Biased Surface Activity Measurements	Equipment Surface Activity Measurements	Media Samples	Volumetric Samples	Surface Activity Scans				
Building:		Туре:		Survey Area:	A China Chin				
Survey Unit:			Area (m²):						
Survey Unit Desc	eription:								
Survey Type:	<u> </u>	WO THE WHILL WARD THE	Classification:	The state of the s	***				
RLC Survey □	FSS □		Class 1 Class	2 □ Class 3 □ U	Jnknown □				
Random/Uniform Surface Activity Measurements	Biased Surface Activity Measurements	Equipment Surface Activity Measurements	Media Samples	Volumetric Samples	Surface Activity Scans				
Building:		Type:		Survey Area:					
Survey Unit:			Area (m²):						
Survey Unit Description:									
Survey Type:		**************************************	Classification:						
RLC Survey □	FSS □		Class 1 Class	2□ Class 3□ U	Jnknown □				
Random/Uniform Surface Activity Measurements	Biased Surface Activity Measurements	Equipment Surface Activity Measurements	Media Samples	Volumetric Samples	Surface Activity Scans				

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SURVEY PACKAGE SURVEY/SAMPLING INSTRUCTIONS FORM

Package ID: 2000-01	Building: T883B
Survey Area: Not Applicable	Survey Unit: Interior

Survey Unit Description: This trailer was constructed/assembled at this site, Cedar Avenue and Eighth Street, directly east of Building 883, in1983. The size of this trailer is approximately 28' X 70' and it is assembled from 2 trailer units of approximately 14' X 70' feet in size.

Minimum Survey/Sampling Measurement Requirements								
Measurement	Number and Type	Comments						
Surface Activity	INTERIOR FLOORS/WALLS/CEILINGS:	SEE NOTE 1						
Measurements	28 surveys will be taken per the attached survey	SEE NOTE 2						
	map.	SEE NOTE 3						
	QUALITY ASSURANCE SURVEYS	SEE NOTE 4						
	QUALITY ASSERTANCE SURVEYS	SEE NOTE 5						
	INTERIOR FLOORS/WALLS/CEILINGS:	SEE NOTE 6						
	5 surveys will be taken per direction from radiological engineering.							

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SURVEY PACKAGE SURVEY/SAMPLING INSTRUCTIONS FORM (cont)

Package ID: 2000-01	Building: T883B
Survey Area: Not Applicable	Survey Unit: Interior

Survey Unit Description: This trailer was constructed/assembled at this site, Cedar Avenue and Eighth Street, directly east of Building 883, in1983. The size of this trailer is approximately 28' X 70' and it is assembled from 2 trailer units of approximately 14' X 70' feet in size.

28' X /0' and it is assembled from 2 trailer units of approximately 14' X 70' feet in size. Minimum Survey/Sampling Measurement Requirements								
Measurement	Number and Type	Comments						
Surface Scanning Change #3 Em Feat-00	INTERIOR FLOORS: Biased surface scans will be performed on the interior floors in areas where contamination would accumulate. This includes seams, cracks, corners, doorways and boundaries between different types of flooring. No more than 10% of the total area will be scanned. QUALITY ASSURANCE SCAN SURVEYS INTERIOR FLOORS: 5 percent of total number of scans or of total scan area will be taken per direction from radiological engineering.	SEE NOTE 1 SEE NOTE 2 SEE NOTE 3 SEE NOTE 4 SEE NOTE 5 SEE NOTE 6						
Media Samples	NONE							
Volumetric Samples	NONE							
Isotopic Gamma Scans	NONE							

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SURVEY PACKAGE SURVEY/SAMPLING INSTRUCTIONS FORM (cont)

Package ID: 2000-01Building: T883BSurvey Area: Not ApplicableSurvey Unit: Interior

Survey Unit Description: This trailer was constructed/assembled at this site, Cedar Avenue and Eighth Street, directly east of Building 883, in1983. The size of this trailer is approximately 28' X 70' and it is assembled from 2 trailer units of approximately 14' X 70' feet in size.

Survey/Sampling Instructions

NOTE 1: Surveys of the area were established on a random basis and are delineated on page 14, RSFORMS-16.01-10, of the survey package. Survey points will be taken in the middle of the survey grid and will be cross-referenced to a common reference point in the trailer. These surveys will be taken in accordance with PRO-476-RSP-16.02, "Radiological Surveys of Surfaces and Structures", for the following:

- Total alpha contamination
- Total beta contamination
- Removable alpha contamination
- Removable beta contamination
- Biased scan measurements for alpha then beta/gamma contamination

For total alpha and total beta surveys, the LAB will be determined at each survey point by placing a piece of plywood over the probe face that is at least 0.5 inch thick and performing an alpha count and a beta count. The material background for both total alpha surveys and total beta surveys will be considered to be 0 dpm/100 cm².

Alpha scanning using the NE Electra for the DP6-BD and DP8A probes will be in accordance with Letter SJR-001-99, "Alpha Scan Rates for Building 779 Cluster Final Status Surveys," and Letter SJR-004-99, "Performance of Scan Surveys with the Bicron/NE DP8 Probe for Building 779 Cluster Final Status Surveys," respectively. Beta scanning using the NE Electra.

NOTE 2: Quality assurance prescribed surveys of the area will be taken in accordance with PRO-476-RSP-16.02, "Radiological Surveys of Surfaces and Structures" per the requirements in PRO-479-RSP-16.05, "Radiological Survey/Sample Quality Control," for the following:

- Direct alpha contamination
- Direct beta contamination
- Scan measurements for alpha then beta/gamma contamination

The location of quality assurance surveys will be delineated by radiological engineering after the initial surveys are performed. Quality assurance surveys will be performed by a different individual than performed the original survey.

NOTE 3: The RCT shall document the results for all surveys performed and maintain with the survey instructions package.

NOTE 4: All survey instruments will be performance checked both prior to and after performing surveys, and both performance checks will be documented. Contact Radiological Engineering for direction if an instrument fails the post performance check.

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SURVEY PACKAGE SURVEY/SAMPLING INSTRUCTIONS FORM (cont)

Package ID: 2000-01	Building: T883B
Survey Area: Not Applicable	Survey Unit: Interior

Survey Unit Description: This trailer was constructed/assembled at this site, Cedar Avenue and Eighth Street, directly east of Building 883, in1983. The size of this trailer is approximately 28' X 70' and it is assembled from 2 trailer units of approximately 14' X 70' feet in size.

Survey/Sampling Instructions

NOTE 5: The following MDA requirements are a goal for each survey instrument. The MDA shall not exceed the Investigation Levels outlined in NOTE 6.

- 10 dpm/100 cm² for removable alpha contamination
- 50 dpm/100 cm² for total alpha contamination
- 500 dpm/100 cm² for removable beta contamination
- 2500 dpm/100 cm² for total beta contamination
- 150 dpm/100 cm² for alpha scan
- 7500 dpm/100 cm² for beta scan

NOTE 6: If a survey result exceeds the following investigation levels, contact radiological engineering before proceeding:

- 15 dpm/100 cm² for removable alpha contamination
- 75 dpm/100 cm² for total alpha contamination
- 750 dpm/100 cm² for removable beta contamination
- 3750 dpm/100 cm² for total beta contamination
- 225 dpm/100 cm² for alpha scan
- 11250 dpm/100 cm² for beta scan

An investigation will be performed into the elevated results.

7967

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									<u> </u>	'AGE 9 of	15
		Т	OTAL S	URFACI	E ACTIV	TTY SURV	EY DATA I	FORM			
Survey A	rea: NOT AP	PLICABLE	S	urvey Un	it: INTE	RIOR		Build	ing: T88	33B	
directly	nit Description east of Build railer units o	ding 883, in	1983. 7	The size 4' X 70'	of this feet in s	trailer is a _l size.	pproximate	edar Ave ely 28' X	nue and 70' and	d Eighth St it is assem	reet, ibled
Data	/ Time	-		Total	Surface	Instrument	Data		************		
Inst.	/ Time No.: α					Probe No	•				
α											
Inst.	No.: β,γ					Probe No.:					
Εffic	β, γ Efficiency (%): $α$ $βγ$ (cpm/dpm) MDC (dpm/100 cm ²): $α$ $βγ$ Probe Correction Factor: $α$ $βγ$ (10						Bkød: α		βv	(dnm	$/100 \text{ cm}^2$
MDC	(dpm/100 cm	²): α		βγ	эти артту	17140.71104	:			(upin	7100 CM 7
Probe	e Correction Fa	ictor: a		βγ	(1)	00 cm ² /prob	e area)	A 7 T	70		
Cai. I	Due Date:					Surve	ey Type:	Alpha	Ве	ta _	
Sample Number	Location / Description	Gross Co (cpm)	LAB Bkgd Net Counts (cpm) (cpm)		*Gross Activity (dpm/100 cm ²)		Gross A Mat. Ar	**Net Activity Gross Activity - Mat. Area Bkgd. (dpm/100 cm ²)		
		α	β,γ	α	β,γ	α	β,γ	α	β,γ	α	β,γ
								 			-
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}				}							
						<u> </u>		 			
ļ	L	<u> </u>	* (Gro	oss Cts - I	_AB) ÷ (I	$Eff.) \times CF =$	Gross Activi	tv	L		
200			**	Gross Ac		lat. Bkg = N	let Activity	- <i>-</i>			
RCT Printed N	iame		Employee	#		RCT Signature			Da	ate	
RCT Technical Supervisor Printed Name Employee #					RCT Technical Supervisor Signature Date						

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		RE	MOVABLE S	URFACE ACT	TIVITY DAT	A SURVEY	FORM			
APPLICA	vey Area: NOT PLICABLE This trailer was a second of the se						Building: T883B			
directly	Survey Unit Description: This trailer was constructed/assembled at this site, Cedar Avenue and Eighth Street, directly east of Building 883, in1983. The size of this trailer is approximately 28' X 70' and it is assembled from 2 trailer units of approximately 14' X 70' feet in size.									
			S	mear Survey	nstrument D	ata				
Inst. No	Date / Time: D.: ficiency (%): α		G ₂₄	Probe N	lo.:				·	
Cal. Du	dpm/100 cm ²): le Date:			Survey	Type: Alph	na	Beta-Gamn	na		
			····	Removable	Survey Data					
Swipe Number	Location / Description	C	omments	Gross C	Net C Cp			e Activity *		
				α	βγ	α	βγ	α	βγ	
)										
									A	
					****	J				
				<u> </u>			i			
									·	
						1.0				
			* (0000) (E.C.)	A COTTAINED TO				
			* (GROS	SS Cts - Inst. Bl	(g) ÷ (Eff.) =	ACTIVITY				
RCT Printed N	ame		Employee #		RCT Signature			Date		
RCT Technical	CT Technical Supervisor Printed Name Employee #				RCT Technical S	Supervisor Signatur	e	Date		

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SU.	RFACE S	CANNI	NG DATA S	HEEI	
urvey Area: NOT APPLICABL	E Survey	Unit: INTER	IOR	Building: T883B	
Survey Unit Description: This tradirectly east of Building 883, if from 2 trailer units of approximation of the survey of the su	n1983. The s	ize of this to	ailer is approxima		
от предоставления предоставления предоставления предоставления предоставления предоставления предоставления пре		Scan Instrui			· · · · · · · · · · · · · · · · · · ·
Date / Time:		Soull Histian	nem butu		
Inst. No.:	Prob	e No.:			
Cal. Due Date:	Surv	ey Type:	Alpha Beta-Gan	nma	
 		Scan Surv	ey Data		
Sample Loc	ation /			So	an
<u> </u>	cription	C	omments		00 cm^2
				α*	β,γ*
	110-1-1				
				<u> </u>	
	,				
		<u> </u>		<u> </u>	
		 			
		-			
RCT Printed Name	Employee #		RCT Signature		Date
RCT Technical Supervisor Printed Name	Employee #		RCT Technical Supervisor Sig	nature	Date

(N ()

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^{*} If an elevated count rate or a sustained audible increase in the count rate is observed during the scan survey, OR the rate meter alarm sounds, THEN: Scan the immediate vicinity to determine the bounds of the elevated activity, and take a "Total Surface Activity" measurement and record. Mark the location of most elevated activity on the surface with a self-adhesive label or equivalent, ensuring that the marking is not applied directly over the point of interest. Further analysis is required by RS Supervision.

SURVEY PACKAGE CALCULATION WORKSHEET

Packa	ge ID: 2000-01	Building: T883B										
Surve	y Area: Not Applicable	Survey Unit: Interior										
Eighth	y Unit Description: This trailer was constructed Street, directly east of Building 883, in 170' and it is assembled from 2 trailer units	983. The size of this trailer is app	roximately									
X To	tal Surface Activity	☐ Media Surface Activity										
X Re	movable Surface Activity	☐ Volumetric Surface Activity										
Step 1:	Calculate the relative shift Δ/σ_s . $\Delta/\sigma_s = (DCGL\text{-}LBGR)/\sigma_s$ $\Delta/\sigma_s = 1.0$											
	where: A value of 1.0 was chosen since no survey data is available and Δ/σ_s may vary between 1.0 and 3.0. The use of 1.0 maximizes the number of surveys required.											
Step 2:	Step 2: Determine Sign p using the calculated relative shift and Table 7-1. Sign p is the estimated probability that a random measurement from the survey unit will be less than the $DCGL_w$ when the survey unit median is actually at the LBGR. Sign p = 0.841345											
Step 3:	Step 3: Determine Decision Error Percentiles for $Z_{1-\alpha}$ and $Z_{1-\beta}$ and the selected decision error levels α and β . Typical (α) and (β) values used at RFETS are 0.05 and 0.05 respectively. This yields a $Z_{1-\alpha}$ and $Z_{1-\beta}$ value of 1.645 and 1.645 respectively.											
Step 4:	Calculate Number of Data Points (N) for Sign T	est using the following equation:										
	$N = \frac{(Z_{1-\alpha} + Z_{1-\beta})^2}{4(Sign p - 0.5)^2} = 23.22$											
Step 5:	Increase the number of data points by 20% to en possible data losses. $23.22*1.2 = 27.86$	sure sufficient power of the tests and to	allow for									
Conclus	sion:											
A total	of 28 data points will be needed to satisfy MARS	SIM statistical requirements.										
RICK	ROBERTS	W	1128100									
Project RE	Printed Name	Project RE Signature	Date									
H.B. I	ESTABROOKS		1/2/12									
RESS RE	Printed Name	RESS RE Signature	Date									

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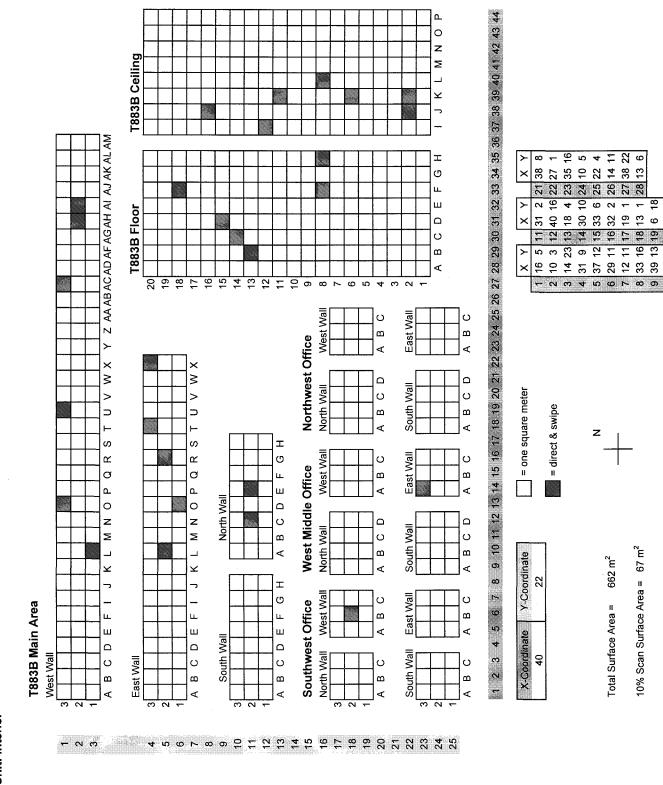
SURVEY PACKAGE SURVEY MAP

Package ID: 2000-01	Building: T883B
Survey Area: Not Applicable	Survey Unit: Interior
Survey Unit Description: This trailer was constru	
Eighth Street, directly east of Building 883, in1	983. The size of this trailer is approximately
28' X 70' and it is assembled from 2 trailer units	
Floor Area (m ²): 160	Total Area (m ²): 662
SEE ATTACHED SURVEY MAP	
SEE ATTACHED SURVET WAF	

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SURVEY PACKAGE VALIDATION CHECKLIST FORM

Package ID: 2000-01	Bu	ilding: T883B		——————————————————————————————————————
Survey Area: Not Applicable	Su	rvey Unit: Interior	- (22);	
Survey Type: Reconnaissance Level Characterizatio	n Surve	ey ☐ Final Status Surve	y X	All and a second
All Documentation Reviewed for Completion		RCT Supervisor		PRE
Scan Surveys		p.d	A	DM
Total Activity Surveys		A/ASH	A	OM
Exposure Rate Surveys		NA		VA
Removable Surveys			,	ony
Media Samples		NA		VA
Volumetric Samples		NA		WA
All Surveys and Samples Accounted For		RCT Supervisor		PRE
Scan Surveys			Å	OM)
Total Activity Surveys		(/		em e
Exposure Rate Surveys		NA		N/A
Removable Surveys		p.l	,	EDW
Media Samples		NA	i	×4
Volumetric Samples		NA	,	VA
Comments: Measurement locations 0-3W, V-3W, AC-3W Measurement locations were changed to Measurement locations were changed to Messpectively	w 1. nots. 0.24	3E & w-3E have my At the duestion of the U, U-2W, KC-2W, T-2	sufficient of the second	t area- hur 2E
Red Working				Color
RCT Supervisor Printed Name RICK ROBERTS (1) (1) (1) (2) (2) (2) (2) (2) (2) (2) (2) (2) (2			000 mg (-/2-00
H. B. ESTABROCKS T. W. RESS Manager Printed Name	-	S Manager Signature	2/5	3-3-00
ALOO manager runted rame	AES:	5 Frankages Signature V	<u></u>	ate

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Survey Area:

N/A

Survey Unit:

Interior

Building:

T883B

Survey Unit Description:

Floors, walls, and ceilings of Trailer T883B

8. POST-PERFORMANCE ACTIVITIES

8.1 Documentation

Reviewed the above mentioned Survey Package and associated measurement data in accordance with PRO-478RSP-16.04, Radiological Survey/Sample Data Analysis. The following items are noted:

- 1. Various notes are provided on the Survey Package DQA Checklist. See DQA Checklist.
- 2. Various notes are provided within the Survey Package. See Survey Package.
- 3. DQA Checklist should have location to input Survey Area, Survey Unit, Building and Survey Unit Description to ensure improved tracking.
- 4. Section 7.2.2 Accuracy, of RSP-16.04 should be rewritten to provide usable accuracy analysis process. Interoffice Memorandum REVISION TO PRO-478-RSP-16.04, RADIOLOGICAL SURVEY/SAMPLE DATA ANALYSIS EDM-001-00 was written and concurred on to provide a usable accuracy analysis process.
- 5. Spreadsheets provided to perform statistical calculations.
- 6. Several forms have been generated to replace forms from RSP-16.02. RSP-16.02 should be revised to reflect this change/improvement.
- 7. Total number of data points is very conservative. Using MARSSIM guidance it can be shown that significantly less data points are statistically acceptable. See spreadsheets.
- 8. Survey maps need improvement. Methodology employed is one that was used prior to RSP-16.01 approval. Recommend scale maps with grid overlays or CAD drawing in the future. See B779 Closure Project maps as examples. Several locations identified could not be surveyed because they did not exist within the confines of the trailer dimensions. At the direction of the Project Radiological Engineer, adjacent locations were chosen to perform measurements.
- 9. See data sheets for corrected data.

Prepried by: S. Oliver 13-2-20

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(09/30/99)

APPENDIX A

Page 1 of 1

DQA Checklist

§	Item	Performed By (Initials/Date)	Comments (number & attach)
7.1	Data Verification	EMM/3-2-00	
7.1[1]	DQOs implemented as prescribed	smi/3-2-00	
7.1[2]	All required supporting documents present	KOM /3-2-00	
7.1[3]	Outliers / anomalies addressed	120m/3-2-00	
7.2	Data Validation	Em /3-2-00	
7.2.1	Survey/Sample Precision	Emu/3-2-00	see spreadsheets
7.2.2	Survey Accuracy	Emu/3-2-00	see spreadsheets
-	Sample Accuracy	NA	no samples taken
7.2.3	Data Representative of survey unit	RMU/3-2-00	
7.2.4	Survey/Sample/Scan Completeness	Emu/3-2-00	100%
7.2.5	Data Comparable to related units	RMU/3-2-00	yes group B
7.3	DQA complete	Emm/3-2-00	yes, Group B See Spreadsheets
7.3[3]	Any measurement > DCGL _w ?	NA	N/A
7.3[4]	Mean > DCGL _w	N/A	NA
7.3.[5]	Any measurement > maximum DCGL	NA	NA.
7.4	Evaluation	NI/A	N/A
7.4[1][D]	New survey package (if req'd)	NIA	N/A
7.4[1][E]	Radiological improvement report (if req'd)	NIA	N/A
7.4[2]	Verify documentation complete	N/A	N/A
8.0	Peer review	do 6/13/00	'
	Package submitted to project management		
9.1	Records to Records Center (copy to project files)	18-28-00	

NOTE: The DQA Flow Chart (Appendix B) is provided as aid to illustrate the DQA process when performing survey/sample data analysis activities describe in this procedure.



3-295

Removable Activity

(dpm/100 cm²) Alpha

Survey Unit - Interior Survey Area - N/A

Building - T883B

Removable Contamination Data Sheet

Survey Unit Description - Floors, walls and ceilings of Trailer T883B

20 dpm/100 cm² 28 DCGLw

Mean

 $-0.7 \text{ dpm/100 cm}^2$ 1.0 dpm/100 cm² Std Dev

No measurement exceeds the DCGL_w

3-296

Removable Activity

(dpm/100 cm²) Beta

Survey Unit - Interior Survey Area - N/A Building - T883B

Survey Unit Description - Floors, walls and ceilings of Trailer T883B

Removable Contamination Data Sheet

1000 dpm/100 cm²

DCGLw

Std Dev Mean

No measurement exceeds the DCGL_w

-10.5 dpm/100 cm² 15.3 dpm/100 cm²

Total Surface Activity (dpm/100 cm²) Alpha 30.0 8.9

Survey Area - N/A	Survey Unit - Interior	Building - T883B	Survey Unit Description - Floors, walls and ceilings of Trailer T883B	Total Surface Activity Data Sheet	100 dpm/100 cm ²	28	14.5 dpm/100 cm²	10.8 dpm/100 cm ²		No measurement exceeds the DCGL $_{ m w}$	No measurement exceeds 75% of the the DCGL $_{ m w}$		Ē		
Survey /	Survey	Building	Survey l	Total Su	DCGL _w	_	Mean	Std Dev		No meas	No meas		Precision		l ocotion
 30.0	8.9	-2.7	-3.1	8.9	17.9	-3.1	12.1	17.9	5.8	8 .0	0.0	5.8	14.8	26.8	7 00

							rements			
RPD	1027.586	64.90066	200	99.58159	449.6644		rvey measu			
(C₁+C₂)/2	1.45	22.65	-1.55	11.95	7.45		Precision (RPD) is out of specification due to low value survey measurements			
C_1 - C_2	14.9	14.7	-3.1	11.9	33.5		ation due to			
ပ်	9.9	15.3	0.0	9	-9.3		of specifica			
ပ်	8.9	30.0	-3.1	17.9	24.2		RPD) is out	ents		N pa
Location	F-18F	D-15F	F-8F	H-8F	R-2E		Precision (F	measurements		Recalculated N
33.1	24.2	30.0	11.6	26.8	24.2	11.6	14.8	26.8	23.7	17.9

$\Delta/\sigma_{\rm s} = ({\rm DCGL\text{-}LBGR})/\sigma_{\rm s}$	$\Delta/\sigma_{\rm s} = (100-50)/10.8$	$\Delta/\sigma_s = 4.63$ (default to 3)	Sign $p = 0.998650$	N = 10.88	10.88*1.2 = 13.05

6.3 5.8 N = 14

Total Surface Activity (dpm/100 cm²) Beta

Survey Area - N/A	Survey Unit - Interior	Building - T883B	Survey Unit Description - Floors, walls and ceilings of Trailer T883B	Total Surface Activity Data Sheet	DCGL _w 5000 dpm/100 cm ²	n 28	Mean -51.0 dpm/100 cm ²	Std Dev 225.0 dpm/100 cm ²		No measurement exceeds the DCGL _w	No measurement exceeds 75% of the the DCGL $_{ m w}$		Precision		Location C_1 C_2 C_1 - C_2 $(C_1+C_2)/2$ RPD		_	F-8F 66 -65 131 0.5 26200	-26 268	R-2E -132 192 -324 30 -1080		Precision (RPD) is out of specification due to low value survey	measurements		Recalculated N	
145	63	168	99	13	-26	-234	-316	-336	-293	-184	0	-204	-333	-191	-217	-132	-257	-356	270	264	405	112	99	231	273	450

N

 $\Delta/\sigma_s = (5000-2500)/225.0$ $\Delta/\sigma_s = 11.11$ (default to 3)

Sign p = 0.998650N = 10.88

10.88*1.2 = 13.05 N = 14

 $\Delta/\sigma_{\rm s} = ({\rm DCGL\text{-}LBGR})/\sigma_{\rm s}$

Survey Area: N/A Survey Unit: INTERIOR | Building: 78830 **Survey Unit Description** Interior walls Floor, and Ceiling

SURVEY SIGNATURE SHEET Removable /Total Surface Activity Performed By LAWSON, MARK 2-21-00 RCT Printed Name RCI Signature Date PARKER ARCHIE RCT Printed Name 2-21-00 Date PCHITTUM 2-21-00 RCT Printed Name RCT Signature Date RCT Printed Name 2/21/00 RCT Signature **RCT** Printed Name Employee # RCT Signature Date **RCT Printed Name** Employee # RCT Signature Date **RCT Printed Name**

Quality Control Measurements Performed By

RCT Signature

Date

Employee #

PARKEL ARCHIE RCT Plinted Name		Drain_	2-21-00
RCT Printed Name		ACT Signature	7/21/60
7 CHITTUM		RCT Signature	Date 2/21/00
RCT Printed Name		RCT Signature	Date
RCT Printed Name	Employee #	RGT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date

Survey Reviewed By

1 / Morster		1 1
1000		1 - 2124172
RCT Foreman Printed Name	RCT Foreman Signature	Date
		Date



Survey Area: NA Survey Unit: Interior Building: T883B

Survey Unit Description
Interior Walls, Floor, and Ceiling

INSTRUMENT DATA SHEET

Removable Contamination Survey Instrument Data

Manufacturer	Eberline	Eberline	Eberline	Eberline		
Model	SAC4	BC4	SAC4	BCA		
Inst. ID #	1	2	3	4	5	6
Serial #	1171	868	961	961		
Cal. Due Date	7-11-00	7-12-00	6.21.00	6.27.00	,	
Analysis Date	2-21-00	2.21.00	2.21.00	7.21.00	N	
Instrument Bkg cpm 10-min count time	0.5 cpm	42.3 Cpm	0.5 cpm	39.5 cpm		H
Instrument Eff (%)	33	25	33	25		
Instrument MDA 2-min count time Apm	9.6	72	9.6	69.5		

Total Surface Activity Instrument Data

nufactur	er	N.E.	Tech.	N.E. Tech.		N.E. Tech.							
Model	Electra		Ele	Electra		ectra						****	
Inst. ID #		-	7		8		9	1	0	1	1	1:	2 /
Serial # / Probe #		2378	1956	2379	1924	2385	1931						
Cal. Due Date		5.3	.00	8.9.00		6.14.00				,			
Survey Dat	е	2.21	.00	2.21.00		2.2	4.00			N			
Alpha Bkg 90-sec com count time	Beta Bkg 90-sec com count time	0.7	351	2.0	343	0.7	545				A		
Alpha Eff (%)	Beta Eff (%)	22.35	30.36	21.54	30.65	21.49	29.94			-			
Alpha MDA 90-sec dpm count time	Beta MDA 90-sec 4pm count time	23	240.4	33.3	235.4	23.2	302.3						

SURVEY PACKAGE SURVEY MAP

PAGE 14 OF 15 Attachment to RSFORMS 7.01-10

Survey Unit: Interior Package ID: 2000-01 Building: T883B

T883B Main Area

Z AA AB AC AD AF AG AH AI AJ AK AL AM > × ≥ > ⊃ ഗ α Ø Δ. 0 Z Σ \mathbf{x} ட ш Δ West Wall ပ മ 4 3 7

 $\leftarrow Z$

٩ 0 Z **F883B** Ceiling Σ \mathbf{x} I G ய ш **T883B Floor** Ω ပ Ω <u>8</u> 15 4 19 16 13 7 10 တ 9 2 ω West Wall East Wall O Ω Northwest Office × ≥ South Wall North Wall Ö > \supset മ ഗ ェ West Wall G East Wall \propto O West Middle Office Ø മ م ш ⋖ North Wal 0 Δ Z O South Wall North Wall ≥ ω O Ω ¥ I West Wall East Wall G Ç Southwest Office $\mathbf{\omega}$ ш щ ш ш South Wall Δ Δ North Wall South Wall East Wall O O O മ മ $\mathbf{\omega}$ ⋖ ⋖ က 7 က 2 က 2 7

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NOTE: SCAN AREA DETERMINED UPEN HIGH TRAFFIC AREA

3 0 E

PAGE 4597862

Final Survey NE Electra Scan & Investigation Survey Map

Survey Area:	Survey Unit: INTERIOR	Building:	
Survey Unit Description:		1 00.	3 D
INTERIO	e Floce		
RCT Initials/Date: PC 2-21-00 1	RCT Initials/Date: 12	-21-99 RCT Initials/Dat	e:
Refer to the Final Survey NE Electra Scan & In			formation.
Legend: "R"- Roof	, "W" - West, "S" - South, "E"	'-East, "N" - North	
D-17F		B-5F	
		\bigcirc	
*			

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3.9F		C-9F	
		(2)	
		(3)	
		• • • • • • • • • • • • • • • • • • • •	
)	
*	*		
* Designates corner closest to A-1 point	of reference		

Results/Comments:

Rev. 020900

Electra alpha scans were performed at the locations detailed on the survey map(s). All required accessible areas were scanned. All initial scan results were \$225 dpm/100cm², unless noted on the survey form.

<225 dpm/100cm², unless noted on the survey form.

Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the survey form.

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c:\Final Survey\DPElectraSurvey020900.doc

Page _____ of ____

Final Survey NE Electra Scan & Investigation Survey Form

Survey			747	Survey U				Building:	
Survey	Unit Des	cription:	74		エルァ	ERIOI	R	T883	13
			IN	TERIOR eta	FLOCI	2 Sca	N		
Loc.		Ele			1		Electra D1		
ID#	RCT ID#	Inst. ID#	Elevated Audible observed? "Y" or "N"	60-sec PAT (dpm/100cm2)	RCT ID#	Inst. ID#	4-sec Audible observed? "Y" or "N"	30-sec Static (gcpm)	90-sec PAT (dpm/100cm ²)
D-17F1		8	N	NA		8	Y	2.0	~A
B-5F1		8	<i>y</i>	565		9	N	NA	NA
D-12F		8	N	NA		Ý	N	N 4	N.9
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C-13F		-/			_				
7-13F									
E-13F			<u> </u>						
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C-14F		-				1			
D-14F									
E-14 F					_				
A-15 F			\\.		-				
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E-14F									
A-17F			<u> </u>			 			
B-175									
C-17F									
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モーリア									
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Final Survey NE Electra Scan & Investigation Survey Form (Continuation Sheet)

Survey	Area:			Survey U1	nit:			Building: 7883		
Commen	Unit Des	NA			NTERI	OR		T883.	<i>B</i>	
Survey	Unit Des	cription:	,	Tanaa a E	4000	5041				
		El	ectra DP-6 B	ERIOR F		2CAN	Electra D	P-6 Alpha		-
Loc.	RCT	Inst.	Elevated	60-sec PAT	RCT	Inst.	4-sec Audible	30-sec Static	90-sec PAT	
'ID#	ID#	ID#	Audible observed? "Y" or "N"	(dpm/100cm2)	ID#	ID#	observed? "Y" or "N"	(gcpm)	(dpm/100cm ²)	
C-18F		8	N	NA	Anna Anna anna anna anna anna anna anna	8	~	NA.	NA	
D-14 F				<u> </u>			-			
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F-18F										
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D-19F										
E19F								<		
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B-268		,								
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C-9F2					Programme of the second	7	У	24	A.CA	
C-9F3						7	у.	10	NA	
B-9=1					And the second s	7	À	. 12	JA.	
c-8F						.7	٨	N.A	, ~^	,
B-8F						7	N	NA	WA.	
B-2=			 			9	~	N.A.	NA	
A-3 F						-(\ <u>-</u>		
8-35						_				
A-4F						-		-		
B-4F		V	₩	₩		.}	1	1		
A-5F		8	N	,u A		9	\sim	NA	NA	

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Final Survey NE Electra Scan & Investigation Survey Form (Continuation Sheet)

Survey	Area:			Survey Un	it:		I	Building:	
	Unit Des	NA			INT	ERIO	R	T883	В
Survey	Unit Des	cription:		INTERIO.	RE	1000	5010		
	T	Ele	ectra DP-6 B	eta	F-	CON IC	Electra DI	P-6 Alpha	
Loc.	RCT	Inst.	Elevated	60-sec PAT	RCT	Inst.	4-sec Audible	30-sec Static	-90-sec PAT
· ID#	ID#	ID#	Audible observed? "Y" or "N"	(dpm/100cm2)	ID#	ID#	observed? "Y" or "N"	(gcpm)	(dpm/100cm ²)
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H-8F									
7-97		-	-						
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E-10F			/			<u> </u>			
9-108)					
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Final Survey NE Electra Scan & Investigation Survey Form

Survey .	Area:		4	Survey Un				Building:	
Currar	Unit De-	Cription:	<u> </u>		1078	RIVA		T883	<i>i</i> s
Survey	Onit Des	cription:	1	. r		Λ.	. 🔪		
		FL	/พารถ ectra DP-6 Be	ion From		CX C	Electra D	D 6 Alpha	
Loc.									
ID#	RCT ID#	Inst. ID#	Elevated Audible observed? "Y" or "N"	60-sec PAT (dpm/100cm2)	RCT ID#	Inst. ID#	4-sec Audible observed? "Y" or "N"	30-sec Static (gcpm)	90-sec PAT (dpm/100cm ²
F-18 F		9		NA		9	~	NA	1.4
D-15F		9	N	N-4		9	N	W4	NH
F-8F		9		NA		4	N	NA	NA.
H-8F		9	N.	NA	-	8	N	NA	NA
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Survey Area:	NA	Sur	vey Unit:	Tarres of	Building:	
Survey Unit D	escri	ption				
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		<u> </u>	T	otal :	Surfa	ace A	ctiv	ity D	ata	Shee	t		
Sample location	RCT ID#	Inst	ID#	Survey co		ı	AB om)	1	Count		ounts om)		ctivity 00cm2)
		α	β	α	β	α	β	α	β	α	β	α	β
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C-14F		7	4	90	90	0.3		4.4	34 i	4.0		ુે.ગ	
B-13F		7	7	90	90			A Company	÷ ₁ , ()	* Q. ig	្វ	a. 75 and	158
F-8F		+	7	90	90	7. O		1.5	2, 2	- 0.4	120	-3.1	(a 40
F-18F		7	7	90	90	0.3		7, N	*********	70	lang.	2.9	. 3
H-8F		7	**	90	90	9 · • • • • • • • • • • • • • • • • • •	453	5.5	3.5	~ , ()	** ()	14.3	
L-1W		7	7	90	90	Ţ. ()	334	. \$	الوا الوالو (. 0.4	- "	.5.1	- 3,34
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WS-HA		7	7	90	90	. 3		4, 4,	3.4	2.0		2.3	3 1
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<i>ي-</i> 2٤		7	7	90	90	1.3		4.3	7,3%	(°)	-52	7,3.9	<u> </u>
0-1E		7	7	90	90	1.3	115	٦,٠	304	4.4	- 66	\$3.	- 2.14
- R-ZE		7	7	90	90	1.3	神		239	4.4	•40	Total Con	-132
T-2E		7	7	90	90	12.0	- 0 1	٠.,	293		-12	30.0	. 157
W-2E		7		90	90	0.0	349	3.3	₹. 1 .	1.6	02	11.4	-356
I-12C		7	7	90	90	6.0	3.44	4.0	11 5 L3	6.0	91	2.2.9	210
2-50		7	7	90	90	1.3		4.3		5, 4	70	2,4.2.	2/34
5-100		7	7	90	90		300	5.3	-33		, 2.3		405
K-20		7	7	90	90		3.40	3.3	349	5.3	J.	.4.9	112
K-60		7	4	90	90	3.	ું વૃદ્ધ	4	*+17,	0	7.0	24.3	(a)a .
K-110			-1	90	90			. O	4000		40	7.5.4	7.%
r-8c		7	Ì	90	90	1 - 2			to you give y	47.0	73	.4.9	743
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FIRF QC		8	्र	90	90	-0. O	12.1	0.4	453	-1.3	gar, sab Sg. S Shap	- 👾 .	(04
DISFQC		8	8	90	90	0.0		3.3	40%	27 gay		18.3	20%
F <u>9F</u> QC		<u> 2</u>	8	90	90	5.3	9,9	0.7	1,50	0.0	- 0	0.0	-65
H8FQC		8	8	90	90	5.4	\$ 2	1.0	-103	1.3	??		
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Note			1	<u> </u>	l		1	L	l a seigina			Classian	

leasurements are to be collected by a different technician than the original survey. Mark the QC location e "Sample Location" column. Material background is assumed to be zero unless otherwise noted. "LAB" ~ local round.

Page _____ of _____

area background.

Survey Area: NA Survey Unit: INTERIOR Building: 1883 B
Survey Unit Description
FLOORS, WALLS, CEILINGS

			Ť	otal :	Surfa	ace /	Activ	ity D	ata	Shee	t		· · · · · · · · · · · · · · · · · · ·
Sample location	RCT ID#	Inst	ID#	Survey c	ount time		AB pm)		Count		counts pm)		ctivity 100cm2)
		α	β	α	β	α	β	α	β	α	β	α	β ~
South		06	EICE	90	90	The state of the s			to the last report that the player and public			*	
B-2W		7	7	90	90	1.3	351	2.7	303	1.4	-48	6.3	- 158
WEST			FICE	90	90	Personalist The Property				manger page 1 man a 1 man			
A-ZE		70 3 7	7	90	90	0.0	346	1.3	265	1.3	-81	5.8	-267
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Note: QC measurements are to be collected by a different technician than the original survey. Mark the QC location number in the "Sample Location" column. Material background is assumed to be zero unless otherwise noted. "LAB" ~ local area background.

Page | Q of | |

Survey Area: NA Survey Unit: INTERIOR Building: T883B

Survey Unit Description Interior Ways, Floor, and Ceiling

Sample ocation	RCT ID#	Inst			Counts pm)	1	Counts cpm)		ble Activity /100cm2)
MAIN A		α	β	_α	β	α	β	α	β
2.E		١	2	0	45	5	2.7	-1.5	11
2.E		3	4	0	34.5	5	-5.0	-1.5	-20
2.E		1	2	0	36.5	5	-3.8	-1.5	-15
.2.E		3	4	0	40	5	0.5	-1.5	2
2.N		1	2	0	39	5	-3.3	-1.5	-13
.Z.N		3	4	0	36	5	-3.5	-1.5	-14
.1.W			2	5	39	0	-3.3	0	-13
.2.W		3	4	.5	35.5	0	-4.	0	-16
.2.W			2	<u> </u>	39	.5	-3.3	1.5	-13
L.2.W		3	4	0	35.5	- ,5	- 4	-1.5	-16
4.2.W			2	0	44	5	1.7	-1.5	7
-2.W		3	4	0	38.5	5	-1	-1.5	-4
-12·C			2	1	43.5	1.5	1.2	1.5	5
.2.0		3	4	50	37.5	0	-2	0	-8
.16.C		Ī	2	0	31	5	-11.3	-1.5	-45
·2.C		3	4	な	36.5	0	-3	0	-12
.6.0		1	2	0	33.5	7.5	- 8.8	-1.5	-35
-11-C		3	4	0	36	-,5	-3.5	-1.5	-14
-8-0		١	2	5.	38.5	0	-3.8	Q	-14
-8-F		3	4	0	39	5	5	-1.5	-2_
-18-F		1	2	.5	365	6	-5.8	0	-23
-8-F		3	4	15	28.5	0	-11	0	-44
-15-F		Ī	7.	5	43.5	0	1.2	0	5
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Page _______ of ______

SURVEY PACKAGE COVER SHEET

Package ID: 2000-01	Building: Trailer T883B	
Survey Area: Not Applicable	Survey Unit: Exterior	
Survey Unit Description: This trailer was con and Eighth Street, directly east of Building 883 28' X 70' and it is assembled from 2 trailer unit	, in 1983. The size of this traile	r is approximately
Building Information:		
Survey Type: Reconnaissance Level Characterization	Survey Final Status Survey X	
Building Type: Type 1 X Type 2 □ Type 3 □		
Classification: Class 1 Class 2 Class 3 X Unk	nown 🗆	
Contaminants of Concern: Plutonium X Uranium X	Other 🗆	
Justification for Classification: This facility be contamination.	as no known history of radiolo	ogical
Special Support Requirements: Ladder, maninstrumentation may be required for surveying upper walls and ceilings on the interior and upp	in overhead areas. Overhead a	
Special Safety Precautions: Access to overhe caution when working in overheads.	ad areas may require additiona	al controls. Use
Isolation Controls:		
Level 1 Level 2 X N/A		
Labeling Requirements: The location where f	ixed and removable surveys ar	e performed will
be marked using a sticker or a marker and then		
Survey Package Implementation:		<u></u>
Survey I ackage implementation.		
		<u> </u>
RICK ROBERTS	ML	1/35/00
	diological Engineer Signature	Date
	/A	N/A
	FS Manager Signature	Date
H. B. ESTABROOKS		1/-1/32
	SS Manager Signature	Date
Survey Package Closure:		
RICK ROBERTS EDM 1/3/00 EPIC D. M. LAMET	4. 3. 1. 4	3/3/60
RESS Radiological Engineer Printed Name	SS Radiological Engineer Signature	Date
NOT APPLICABLE	/A	N/A
	FS Manager Signature	Date
RESS Manager Printed Name	Tempopoles	8/3/00
RESS Manager Printed Name	SS Manager Signature	Date

08/3/00

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SURVEY PACKAGE TRACKING FORM

Package ID: 2000-01		Building: Trailer T8831	erior					
Survey Area: Not Applic	able	Survey Unit: Exterior	. Not have					
Initiator/ Date	Release Date	Validation Date	Closure Date					
AM 1/31/33	11 Sofae		### # # B B B B B B B B					
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SURVEY PACKAGE CORRECTION/CHANGE HISTORY FORM

Package ID:	2000-01	Building: Trailer	Г883В	
Survey Area:	Not Applicable	Survey Unit: Exte	rior	
Change #	Description		Initiator/ Date	PRE
1	Perton was a conge	property land to the second	211 31110	
· · · · · · · · · · · · · · · · · · ·	RIR-001-00 Material		, , , , , , , , , , , , , , , , , , ,	
2	Document Stray - po	Jan Calle Comment	ENT LINE	1232_
	RIR-DIESS LIEL			
3	Pertan 100 & Survey		MM 3/14/00	
	Letter 1858-003-00		y'	
·	(See p. 8= of 242	C creedy		
4	2 samples and 190 sample		Em 4/1/00	
· · · · · · · · · · · · · · · · · · ·	Characterization Package Suj	<i>M</i> . •		
· ····································	Sampling and Analysis of			
	from Groups B & C for 15			
5	Roy survey sampling or		EDM 6/7/10	<i>i</i> 25-
	Letter Early - 003-00 (p. 8			
6	Thanks Corrected San reg	uisement	EM 6-20-00	Li-
7	Scan map replaced due &	error devoting	120m/6-20-00	46
<u> </u>	scar lointim		,	
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Rev. 9/99

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INITIAL SURVEY PACKAGE DESIGN FORM

Package ID: 2000-01		Building: Trailer T883B		Type: 1	
Survey Area: Not Applicable		Survey Unit: Exterior		Area (m²): 340	
Survey Unit Description: This trailer was constructed/assembled at this site, Cedar Avenue and Eighth Street, directly east of Building 883, in1983. The size of this trailer is approximately 28' X 70' and it is assembled from 2 trailer units of approximately 14' X 70' feet in size.					
Survey Type:			Classification:		
RLC Survey □ FSS X			Class 1 □ Class 2 □ Class 3 X Unknown □		
Random/Uniform Surface Activity Measurements	Biased Surface Activity Measurements	Equipment Surface Activity Measurements	Media Samples	Volumetric Samples	Surface Activity Scans
28	0	0	4002	0	Biased
Building:		Type: Change	4 RDM 4/1/00	Survey Area:	
Survey Unit:			Area (m²):		
Survey Unit Description:					
Survey Type:			Classification:		
RLC Survey □ FSS □			Class 1 □ Class 2 □ Class 3 □ Unknown □		
Random/Uniform Surface Activity Measurements	Biased Surface Activity Measurements	Equipment Surface Activity Measurements	Media Samples	Volumetric Samples	Surface Activity Scans
Building: Type:		Type		Survey Area:	
ranams.		Type.			
Survey Unit:		Type.	Area (m²):		
	cription:	Туре	Area (m²):		
Survey Unit:	ription:	13,000	Area (m²): Classification:		
Survey Unit: Survey Unit Desc	ription: FSS □	13pec	107 107 107		Jnknown □
Survey Unit: Survey Unit Desc		Equipment Surface Activity Measurements	Classification:		Unknown □ Surface Activity Scans
Survey Unit: Survey Unit Description Survey Type: RLC Survey Random/Uniform Surface Activity	FSS Biased Surface Activity	Equipment Surface Activity	Classification: Class 1 □ Class	2 Class 3 U	Surface Activity
Survey Unit: Survey Unit Description Survey Type: RLC Survey Random/Uniform Surface Activity	FSS Biased Surface Activity	Equipment Surface Activity	Classification: Class 1 □ Class	2 Class 3 U	Surface Activity
Survey Unit: Survey Unit Description Survey Type: RLC Survey Random/Uniform Surface Activity Measurements	FSS Biased Surface Activity	Equipment Surface Activity Measurements	Classification: Class 1 □ Class	2 □ Class 3 □ U Volumetric Samples	Surface Activity
Survey Unit: Survey Unit Description Survey Type: RLC Survey Random/Uniform Surface Activity Measurements Building:	FSS Biased Surface Activity Measurements	Equipment Surface Activity Measurements	Classification: Class 1	2 □ Class 3 □ U Volumetric Samples	Surface Activity
Survey Unit: Survey Unit Description Survey Type: RLC Survey Random/Uniform Surface Activity Measurements Building: Survey Unit:	FSS Biased Surface Activity Measurements	Equipment Surface Activity Measurements	Classification: Class 1	2 □ Class 3 □ U Volumetric Samples	Surface Activity
Survey Unit: Survey Unit Description Survey Type: RLC Survey Random/Uniform Surface Activity Measurements Building: Survey Unit: Survey Unit Description Survey Type: RLC Survey RLC Survey	FSS Biased Surface Activity Measurements	Equipment Surface Activity Measurements	Classification: Class 1 Class Media Samples Area (m²): Classification: Class 1 Class	2 Class 3 U Volumetric Samples Survey Area:	Surface Activity
Survey Unit: Survey Unit Description Survey Type: RLC Survey Random/Uniform Surface Activity Measurements Building: Survey Unit: Survey Unit Description	FSS Biased Surface Activity Measurements	Equipment Surface Activity Measurements	Classification: Class 1 Class Media Samples Area (m²): Classification:	2 Class 3 U Volumetric Samples Survey Area:	Surface Activity Scans

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117 /242 RO 3-314

SURVEY PACKAGE SURVEY/SAMPLING INSTRUCTIONS FORM

Package ID: 2000-01	Building: Trailer T883B
Survey Area: Not Applicable	Survey Unit: Exterior

Survey Unit Description: This trailer was constructed/assembled at this site, Cedar Avenue and Eighth Street, directly east of Building 883, in1983. The size of this trailer is approximately 28' X 70' and it is assembled from 2 trailer units of approximately 14' X 70' feet in size.

Minimum Survey/Sampling Measur	rement Requirements
--------------------------------	---------------------

Measurement Number and Type Comments			
Surface Activity Measurements	EXTERIOR WALLS/ROOF: 28 surveys will be taken per the attached survey map. QUALITY ASSURANCE SURVEYS EXTERIOR WALLS/ROOF: 5 surveys will be taken per direction from radiological engineering.	SEE NOTE 1 SEE NOTE 2 SEE NOTE 3 SEE NOTE 4 SEE NOTE 5 SEE NOTE 6	

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SURVEY PACKAGE SURVEY/SAMPLING INSTRUCTIONS FORM (cont)

Package ID: 2000-01	Building: Trailer T883B
Survey Area: Not Applicable	Survey Unit: Exterior

Survey Unit Description: This trailer was constructed/assembled at this site, Cedar Avenue and Eighth Street, directly east of Building 883, in1983. The size of this trailer is approximately 28' X 70' and it is assembled from 2 trailer units of approximately 14' X 70' feet in size.

Minimum Survey/Sampling Measurement Requirements

3.5	Transition Survey/Sampling Weasure	
Measurement	Number and Type	Comments
Surface Scanning Change #6 Emil 6-20-00	EXTERIOR WALLS/ROOF: Biased surface scans will be performed on the exterior where contamination would accumulate. This includes seams, cracks and corners. Both the exterior walls and roof will be scanned. No more than 10% of the total area will be scanned. QUALITY ASSURANCE SCAN SURVEYS EXTERIOR WALLS/ROOF: 5 percent of total number of scans or of total scan area will be taken per direction from radiological engineering.	SEE NOTE 1 SEE NOTE 2 SEE NOTE 3 SEE NOTE 4 SEE NOTE 5 SEE NOTE 6
Media Samples	ROME 2 Change #4 KAM 4/1/00	
Volumetric Samples	NONE	
Isotopic Gamma Scans	NONE	

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SURVEY PACKAGE SURVEY/SAMPLING INSTRUCTIONS FORM (cont)

Package ID: 2000-01	Building: Trailer T883B			
Survey Area: Not Applicable	Survey Unit: Exterior			

Survey Unit Description: This trailer was constructed/assembled at this site, Cedar Avenue and Eighth Street, directly east of Building 883, in1983. The size of this trailer is approximately 28' X 70' and it is assembled from 2 trailer units of approximately 14' X 70' feet in size.

Survey/Sampling Instructions

NOTE 1: Surveys of the area were established on a random basis and are delineated on page 14, RSFORMS-16.01-10, of the survey package. Survey points will be taken in the middle of the survey grid and will be cross-referenced to a common reference point in the trailer. These surveys will be taken in accordance with PRO-476-RSP-16.02, "Radiological Surveys of Surfaces and Structures", for the following:

- Total alpha contamination
- Total beta contamination
- Removable alpha contamination
- Removable beta contamination
- Biased scan measurements for alpha then beta/gamma contamination

For total alpha and total beta surveys, the LAB will be determined at each survey point by placing a piece of plywood over the probe face that is at least 0.5 inch thick and performing an alpha count and a beta count. The material background for both total alpha surveys and total beta surveys will be considered to be 0 dpm/100 cm².

Alpha scanning using the NE Electra for the DP6-BD and DP8A probes will be in accordance with Letter SJR-001-99, "Alpha Scan Rates for Building 779 Cluster Final Status Surveys," and Letter SJR-004-99, "Performance of Scan Surveys with the Bicron/NE DP8 Probe for Building 779 Cluster Final Status Surveys," respectively. Beta scanning using the NE Electra.

NOTE 2: Quality assurance prescribed surveys of the area will be taken in accordance with PRO-476-RSP-16.02, "Radiological Surveys of Surfaces and Structures" per the requirements in PRO-479-RSP-16.05, "Radiological Survey/Sample Quality Control," for the following:

- Direct alpha contamination
- Direct beta contamination
- Scan measurements for alpha then beta/gamma contamination

The location of quality assurance surveys will be delineated by radiological engineering after the initial surveys are performed. Quality assurance surveys will be performed by a different individual than performed the original survey.

NOTE 3: The RCT shall document the results for all surveys performed and maintain with the survey instructions package.

NOTE 4: All survey instruments will be performance checked both prior to and after performing surveys, and both performance checks will be documented. Contact Radiological Engineering for direction if an instrument fails the post performance check.

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120/212 RO 3-317

SURVEY PACKAGE SURVEY/SAMPLING INSTRUCTIONS FORM (cont)

Package ID: 2000-01Building: Trailer T883BSurvey Area: Not ApplicableSurvey Unit: Exterior

Survey Unit Description: This trailer was constructed/assembled at this site, Cedar Avenue and Eighth Street, directly east of Building 883, in1983. The size of this trailer is approximately 28' X 70' and it is assembled from 2 trailer units of approximately 14' X 70' feet in size.

Survey/Sampling Instructions

NOTE 5: The following MDA requirements are a goal for each survey instrument. The MDA shall not exceed the Investigation Levels outlined in NOTE 6.

- 10 dpm/100 cm² for removable alpha contamination
- 50 dpm/100 cm² for total alpha contamination
- 500 dpm/100 cm² for removable beta contamination
- 2500 dpm/100 cm² for total beta contamination
- 150 dpm/100 cm² for alpha scan
- 7500 dpm/100 cm² for beta scan

NOTE 6: If a survey result exceeds the following investigation levels, contact radiological engineering before proceeding:

- 15 dpm/100 cm² for removable alpha contamination
- 75 dpm/100 cm² for total alpha contamination
- 750 dpm/100 cm² for removable beta contamination
- 3750 dpm/100 cm² for total beta contamination
- 225 dpm/100 cm² for alpha scan
- 11250 dpm/100 cm² for beta scan

An investigation will be performed into the elevated results.

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121/242 RO 3-318

TOTAL SURFACE ACTIVITY SURVEY DATA FORM												
Survey Area: NOT APPLICABLE Survey Unit: EXTI							1	ling: TRAI				
Survey Unit Description: This trailer was constructed/assembled at this site, Cedar Avenue and Eighth Street,												
directly east of Building 883, in1983. The size of this trailer is approximately 28' X 70' and it is assembled from 2 trailer units of approximately 14' X 70' feet in size												
Hom 2 t	from 2 trailer units of approximately 14' X 70' feet in size. Total Surface Instrument Data											
Date / Time												
inst. No.: α Probe No.:												
Inst.	Νο.: β,γ					Probe No.:						
β,γ							DI I		0		(100 2)	
MDC	iency (%): α C (dpm/100 cm²	·): α	βγ	(cr βγ	om/dpm)	Mat. Area	Bkgd: α		βγ	(dpm	/100 cm ²)	
Probe	Correction Fa	ctor: α		βγ	(10	00 cm ² /prob	e area)					
Cal, I	Oue Date:			_		Surv	ey Type:	Alpha	Beta	· -		
-						· · · · · · · · · · · · · · · · · · ·	****		and the second of the second o	**Net	Activity	
Sample Number	Location /	Gross Co			Bkgd		Counts		Activity	1	Gross Activity - Mat. Area Bkgd.	
Number	Description	(cpm	1)	ССР	om)	(0	pm)	(apm/	100 cm ²)		ea Bkga. 100 cm ²)	
									Г			
		α	β,γ	α	β,γ	α	β,γ	α	β,γ	α	β,γ	
		<u> </u>										
								ļ				
									 			
									 			
				-								
							Gross Activi	ty				
RCT Printed N	lame		Employee		uvity - N	Iat. Bkg = N RCT Signatur			Date			
											!	
RCT Technical Supervisor Printed Name Employee #				RCT Technical Supervisor Signature Date								

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REMOVABLE SURFACE ACTIVITY DATA SURVEY FORM											
Survey Area: NOT Survey Unit: EXTERIOR Building: TRAILER T883B APPLICABLE											
Survey Unit Description: This trailer was constructed/assembled at this site, Cedar Avenue and Eighth Street, directly east of Building 883, in1983. The size of this trailer is approximately 28' X 70' and it is assembled from 2 trailer units of approximately 14' X 70' feet in size.											
Smear Survey Instrument Data Count Date / Time:											
Inst. No Inst. Ef	o.: ficiency (%): α dnm/100 cm²):		βγ	Probe N	0.:			Comm	_		
Cal. Du	dpm/100 cm ²): ne Date:		<u>u</u>	Survey	Γype: Alpha	<u> </u>	Beta-Gamr	na	7		
-		-		Removable	Survey Data						
Swipe Number	Location / Description	C	Comments Gross Counts cpm							ovable Activity * lpm/100 cm ²)	
			- 10-70 - 10-70 - 10-70 - 10-70 - 10-70 - 10-70 - 10-70 - 10-70 - 10-70 - 10-70 - 10-70 - 10-70 - 10-70 - 10-70	α	βγ	α	βγ	C	ı	βγ	
			 					 			
				-				-			
		·						 			
		 .						<u> </u>			
				-				 			
		·		 				 			
		<u> </u>						 			
117 441											
											
							:	 			
			* (ODO)	10 Ct. I : 71	-) · (ECC)	OTHERS!					
			* (GKO	SS Cts - Inst. Bk	g) ÷ (EII.) = A	ACTIVITY					
RCT Printed N	ame		Employee #		RCT Signature				Date		
RCT Technical Supervisor Printed Name Employee # RCT To				RCT Technical Su	pervisor Signatur	e		Date			

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SURFACE SCANNING DATA SHEET									
Survey Area: NOT APPLICABLE Survey Unit: EXTERIOR Building: TRAILER T883B									
Survey Unit Description: This trailer was constructed/assembled at this site, Cedar Avenue and Eighth Street,									
directly east of Building 883, in1983. The size of this trailer is approximately 28' X 70' and it is assembled									
from 2 trailer units of approximately 14' X 70' feet in size.									
Scan Instrument Data									
Date / Time:									
Inst. No.:		Probe	No.:						
Cal. Due Date:		Surve	ey Type:	Alpha Beta-Gan	nma				
			Scan Surv	ey Data					
Sample	Locat				Sca				
Number	Descr	iption	C	omments	(dpm/10				
				•	α*	β,γ*			
			-						
· · · · · · · · · · · · · · · · · · ·			· · · · · · · · · · · · · · · · · · ·						
									
· · · · · · · · · · · · · · · · · · ·					Pagengere				
RCT Printed Name		Employee #		RCT Signature		Date			
RCT Technical Supervisor Printed N	Name	Employee #		RCT Technical Supervisor Sig	nature	Date			

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^{*} If an elevated count rate or a sustained audible increase in the count rate is observed during the scan survey, OR the rate meter alarm sounds, THEN: Scan the immediate vicinity to determine the bounds of the elevated activity, and take a "Total Surface Activity" measurement and record. Mark the location of most elevated activity on the surface with a self-adhesive label or equivalent, ensuring that the marking is not applied directly over the point of interest. Further analysis is required by RS Supervision.

SURVEY PACKAGE CALCULATION WORKSHEET

Packa	ge ID: 2000-01	Building: Trailer T883B						
Surve	y Area: Not Applicable	Survey Unit: Exterior						
and Ei	Survey Unit Description: This trailer was constructed/assembled at this site, Cedar Avenue and Eighth Street, directly east of Building 883, in1983. The size of this trailer is approximately 28' X 70' and it is assembled from 2 trailer units of approximately 14' X 70' feet							
	tal Surface Activity	☐ Media Surface Activity						
X Re	movable Surface Activity	☐ Volumetric Surface Activity	7					
Step 1:	Calculate the relative shift Δ/σ_s . $\Delta/\sigma_s = (DCGL\text{-}LBGR)/\sigma_s$ $\Delta/\sigma_s = 1.0$ where: A value of 1.0 was chosen since no survey data	is available and Δ/σ, may vary between 1	.0 and 3.0. The					
	use of 1.0 maximizes the number of surveys requ							
Step 2:	Determine Sign p using the calculated relative states a random measurement from the survey unimedian is actually at the LBGR. Sign $p = 0.841$	t will be less than the DCGL _w when the s						
Step 3:	Determine Decision Error Percentiles for $Z_{1-\alpha}$ are Typical (α) and (β) values used at RFETS are 0. value of 1.645 and 1.645 respectively.	and $Z_{1-\beta}$ and the selected decision error level 05 and 0.05 respectively. This yields a 2	rels α and β . $Z_{1-\alpha}$ and $Z_{1-\beta}$					
Step 4:	Calculate Number of Data Points (N) for Sign T	est using the following equation:						
	$N = \frac{(Z_{1-\alpha} + Z_{1-\beta})^2}{4(Sign p - 0.5)^2} = 23.22$							
Step 5:	Increase the number of data points by 20% to en possible data losses. $23.22*1.2 = 27.86$	sure sufficient power of the tests and to	allow for					
Conclus	sion:							
A total of 28 data points will be needed to satisfy MARSSIM statistical requirements.								
RICK	ROBERTS	The state of the s	1121/20					
Project RE	E Printed Name	Project RE Signature	Date					
H.B. I	ESTABROOKS	PIGGA P	1/2/20					
RESS RE	Printed Name	RESS RE Signature	Date					

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SURVEY PACKAGE SURVEY MAP

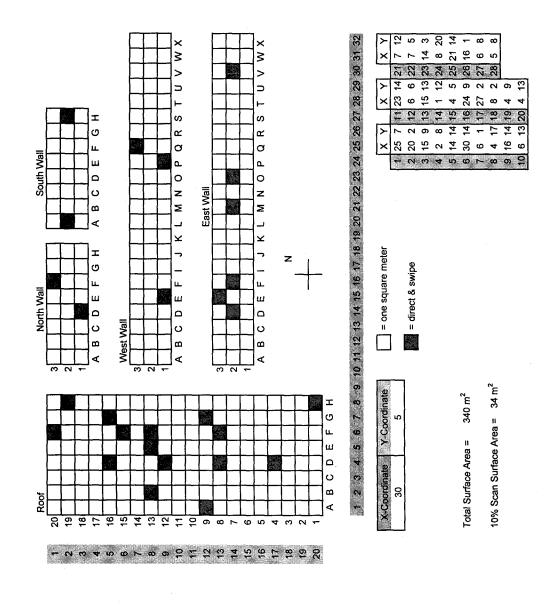
Package ID: 2000-01	Building: Trailer T883B							
Survey Area: Not Applicable	Survey Unit: Exterior							
Survey Unit Description: This trailer was constructed/assembled at this site, Cedar Avenue and Eighth Street, directly east of Building 883, in1983. The size of this trailer is approximately 28' X 70' and it is assembled from 2 trailer units of approximately 14' X 70' feet in size.								
Floor Area (m ²): 160	Total Area (m ²): 340							
SEE ATTACHED SURVEY MAP								

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Package ID: 2000-01 Building: T883B Survey Unit: Exterior



127/242 Ro

SURVEY PACKAGE VALIDATION CHECKLIST FORM

Package ID: 2000-01	Building: Trailer T883B			
Survey Area: Not Applicable	Survey Unit: Exterior			
Survey Type: Reconnaissance Level Characterization	Survey ☐ Final Status Survey	X		
All Documentation Reviewed for Completion	RCT Supervisor	PRE		
Scan Surveys		EBUJ		
Total Activity Surveys	9/	DON		
Exposure Rate Surveys	10 link	NA		
Removable Surveys	1/	My		
Media Samples	pd	PORM		
Volumetric Samples	,× 15	NA		
All Surveys and Samples Accounted For	RCT Supervisor	PRE		
Scan Surveys	Parado I	EM		
Total Activity Surveys	N/	EDW		
Exposure Rate Surveys	. i K	N4		
Removable Surveys	s/	EBM		
Media Samples		EM		
Volumetric Samples	w (×	NA		
Comments:	,			
Per Worse		- (*-12-ctv		
RCT Supervisor Printed Name RICK ROBERTS 2014 1/3 09	CT Supervisor Signature	Date		
ERIC D. MCKAMEY	2. W. 11/7	6-12-00		
Project RE Printed Name H. B. ESTABROOKS	roject RE Signature	Date		
RESS Manager Printed Name	ES Manager Signature	<u> 8-3-00</u>		
NESS Manager Printed Name	ESS Manager Signature	Date		

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Survey Area:

N/A

Survey Unit:

Exterior

Building:

T883B

Survey Unit Description:

Roof and walls of Trailer T883B

8. POST-PERFORMANCE ACTIVITIES

8.1 Documentation

Reviewed the above mentioned Survey Package and associated measurement data in accordance with PRO-478RSP-16.04, Radiological Survey/Sample Data Analysis. The following items are noted:

- 1. Various notes are provided on the Survey Package DQA Checklist. See DQA Checklist.
- 2. Various notes are provided within the Survey Package. See Survey Package.
- 3. DQA Checklist should have location to input Survey Area, Survey Unit, Building and Survey Unit Description to ensure improved tracking.
- 4. Section 7.2.2 Accuracy, of RSP-16.04 should be rewritten to provide usable accuracy analysis process. Interoffice Memorandum REVISION TO PRO-478-RSP-16.04, RADIOLOGICAL SURVEY/SAMPLE DATA ANALYSIS EDM-001-00 was written and concurred on to provide a usable accuracy analysis process.
- 5. Spreadsheets provided to perform statistical calculations.
- 6. Several forms have been generated to replace forms from RSP-16.02. RSP-16.02 should be revised to reflect this change/improvement.
- 7. Total number of data points is very conservative. Using MARSSIM guidance it can be shown that significantly less data points are statistically acceptable. See spreadsheets.
- 8. Survey maps need improvement. Methodology employed is one that was used prior to RSP-16.01 approval. Recommend scale maps with grid overlays or CAD drawing in the future. See B779 Closure Project maps as examples.
- 9. See data sheets for corrected data.

Prepared by: 5.00.0000 1 6-1-00

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(09/30/99)

APPENDIX A

Page 1 of 1

DQA Checklist

		Performed By	Comments
§	Item	(Initials/Date)	(number & attach)
7.1	Data Verification	KARY / 6/1/00	
7.1[1]	DQOs implemented as prescribed	1001/6/1/00	·
7.1[2]	All required supporting documents present	KAM/ 6/1/00	
7.1[3]	Outliers / anomalies addressed	EBM/ 6/1/00	
7.2	Data Validation	EDM / 6/1/00	
7.2.1	Survey/Sample Precision	iony/ 6/1/00	
7.2.2	Survey Accuracy	100 / 6/1/00	see spreadsheets
	Sample Accuracy	repry/6/1/00	, ,
7.2.3	Data Representative of survey unit	EDM/6/1/00	yes
7.2.4	Survey/Sample/Scan Completeness	15my / 6/1/00	117
7.2.5	Data Comparable to related units	16/1/00	yes Group B
7.3	DQA complete	pm/6/1/00	yes, Group B yes, see spreadsheets
7.3[3]	Any measurement > DCGL _w ?	rany/6/1/00	<i>V</i>
7.3[4]	Mean > DCGL _w	NA	
7.3.[5]	Any measurement > maximum DCGL	NA	
7.4	Evaluation	NA	
7.4[1][D]	New survey package (if req'd)	NA	
7.4[1][E]	Radiological improvement report (if req'd)	NA	
7.4[2]	Verify documentation complete	NA	
8.0	Peer review	d= 6/13/00	·
	Package submitted to project management	13°44 (3-9-41)	
9.1	Records to Records Center (copy to project files) OTE: The DOA Flow Chart (Appendix B) is	Dam /8-27-00	

NOTE: The DQA Flow Chart (Appendix B) is provided as aid to illustrate the DQA process when performing survey/sample data analysis activities describe in this procedure.



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(dpm/100 cm²) Alpha Removable Activity

Survey Area - N/A	Survey [Init - Exterior
0.3	o

Survey Unit - Exterior	Building - T883B	Survey Unit Description - Roof and walls of Trailer T883B	
D. O	4.8	3.9	

Removable Contamination Data Sheet DCGLW

20 dpm/100 cm² 28 0.9 0.3 0.3 0.3

1.5 dpm/100 cm² 1.9 dpm/100 cm² Std Dev Mean

No measurement exceeds the DCGL_W

Removable Activity (dpm/100 cm²) Beta

rea - N/A	Survey Unit - Exterior	- T883B	Survey Unit Description - Roof and walls of Trailer T883B	Removable Contamination Data Sheet	1000 dpm/100 cm ²	28	-1.5 dpm/100 cm ²	21.6 dpm/100 cm ²		No measurement exceeds the DCGL _w																	
Survey Area - N/A	Survey U	Building - T883B	Survey U	Removak	DCGLW	_	Mean	Std Dev		No meas																	
-16	43.2	18	7.2	4	15.2	9	9.2	4	23.2	10	35.2	9	-11.6	-29.6	-29.6	22.4	14.4	-35.6	-15.6	-19.6	-5.6	0.4	-27.6	-21.6	-39.6	16.4	-17.6

Activity	Alpha
rface A	cm^2
Su	n/100
Tota	(dpi

m.d., ()	,	:				
16.0	Survey Area - N/A	4 - N/A				
16.0	Survey Unit - Exterior	- Exterior				
38.7	Building - T883B	883B				
48.4	Survey Unit	Description	on - Roof	and walls o	Survey Unit Description - Roof and walls of Trailer T883B	33B
16.4	Total Surface Activity Data Sheet	e Activity	Data She	jt.		
25.6	DCGLw	100	100 dpm/100 cm ²	m²		
32.4	u	28				
0.0	Mean	64.2	64.2 dpm/100 cm ²	m²		
38.7	Std Dev	40.2	40.2 dpm/100 cm ²	m²		
13.1						
42.1	Eight measurements exceeds the DCGL _w	urements	exceeds th	ne DCGLw		
54.7	Ten measurements exceeds 75% of the the	ements ex	ceeds 75°	% of the th	e DCGLw	
35.3						
59.5	Precision					•
65.8						
47.4	Location	ပ်	ပ်	c_1 - c_2	$(C_{1+}C_2)/2$	RPD
101.1	A-2S	38.7	27.9	10.8	33.3	32.43243
 137.4	H-2S	48.4	6.0	42.4	27.2	155.8824
62.6	D-2E	16.4	15.8	9.0	16.1	3.726708
71.6	D-1N	13.1	40.5	-27.4		-102.2388
110.1	E-1W	16.0	3.3	12.7	9.65	131.6062
110.5						
119.5	Precision (R	PD) is out o	of specifica	tion due to	Precision (RPD) is out of specification due to low value survey measur	rvey measur
128.4	measurements	ıts				
92.6						
101.1	Recalculated N	Z D				

Precision (RPD) is out of specification due to low value survey measurements measurements

Recalculated N

92.6

$\Delta/\sigma_{\rm s} = ({\rm DCGL\text{-}LBGR})/\sigma_{\rm s}$	$\Delta/\sigma_{\rm s} = (100-50)/40.2$	$\Delta/\sigma_s = 1.24$ (default to 1.2)
119.5		

Sign p = 0.884930

N = 18.26

10.88*1.2 = 21.92 N = 22

Total Surface Activity (dpm/100 cm²) Beta

	(
-35	Survey Area - N/A	a - N/A			
197	Survey Unit - Exterior	t - Exterior			
164	Building - T883B	883B			
148	Survey Unit	Descripti	on - Roof	and walls	Survey Unit Description - Roof and walls of Trailer T883B
59	Total Surface Activity Data Sheet	se Activity	Data She	et	
203	DCGLW	2000	5000 dpm/100 cm ²	m ²	
131		28			
-210	Mean	7.1.7	71.7 dpm/100 cm ²	m²	
112	Std Dev	211.7	211.7 dpm/100 cm ²	:m²	
226			ı		
-295	No measurement exceeds the DCGL _w	ement exc	eeds the [CGLw	
-249	No measurement exceeds 75% of the the	ement exc	eeds 75%	of the the	DCGL _W
49					
-257	Precision				
208					
-171	Location	ပ်	ပ	ပ-ပ	$(C_{1+}C_2)/2$ RPD
-13	A-2S	164	491	-327	327.5 -99.84733
346	H-2S	148	334	-186	241 -77.17842
125	D-2E	29	-287	346	-114 -303.5088
333	D-1N	226	-641	867	-207.5 -417.8313
333	E-1W	-36	-347	311	-191.5 -162.4021
375					
181	Precision (R	PD) is out	of specifica	ation due to	Precision (RPD) is out of specification due to low value survey
40	measurements	nts			
152					
-221	Recalculated N	Z P			



 $\Delta/\sigma_{\rm s} = ({\rm DCGL\text{-}LBGR})/\sigma_{\rm s}$ $\Delta/\sigma_{\rm s} = (5000\text{-}2500)/211.7$ $\Delta/\sigma_{\rm s} = 11.81 \text{ (default to 3)}$

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Sign p = 0.998650 N = 10.88 10.88*1.2 = 13.05

Survey Area: NA	Survey Unit: EXTELIOR	Building: 7883 B
Survey Unit Description		

SURVEY SIGNATURE SHEET Removable /Total Surface Activity Performed By 2/24/00 RCT Printed Name RCT Signature 2-29-00 MR LAWSON RCT Signature Date RCT Printed Name Chittum 2-29-00 **RCT Signature** Date RCT Printed Name RCI Signature Date RCT Printed Name Employee M RCT Signature Date Employee # RCT Printed Name

Quality Control Measurements Performed By

Employee #

RCT Printed Name

RCT Signature

_			
A.G. PARKOR		Of Parker	2-24-00
RCT Printed Name		RCT Signature	Date
R KELLEY		rull	2.28.00
RCT Printed Name		RCT Signature	Date
		-	
RCT Printed Name	Employee #	RCT Signature	Date
	N		
RCT Printed Name	Employee #	RCT Signature	Date
	· · · · · · · · · · · · · · · · · · ·		
		RCT Signature	Date

RCT Foreman Printed Name

Survey Reviewed By

RCT Foreman Signature

RCT Foreman Signature

Date

Page ____ of ___15

N

Survey Area: NA Survey Unit: EXTERIOR Building: 1883 B
Survey Unit Description
EXTERIOR WALLS

INSTRUMENT DATA SHEET

Removable Contamination Survey Instrument Data

Manufacturer	Eperline	Klerlini	Eberline	Eberline	Eberline	Eperline
Model	SAC	BCA	SACA	BC4	SACH	BCH
Inst. ID#	1	2	3	4	5	6
Serial #	1170	928	1171	868	1170	928
Cal. Due Date	6-30.00	3.27.60	7-11-00	7.12.00	6-30-08	3-27-00
Analysis Date	2.24.00	2.24.00	2.24.00	2.24.00	7-29-00	2-29-00
Instrument Bkg 10-min count time	0.4	42.0	0.2	37.7	0.3	42.4
Instrument Eff (%)	33	25	33	25	33	25
Instrument MDA 2-min count time	31.11.0	71.5	7.56	68	8.3	31100 31000 31100 31100 31100 31100

Total Surface Activity Instrument Data

iufactu	rer	N.E.	Tech.	N.E.	Tech.	N.E.	Tech.	ΝĒ	Tech	NET	ECH		
Model		Ele	ctra	Ele	N.E. Tech. Electra 8 2385 1931 6-14-00 2.24.00		ectra	ELA	ECTRA	ELECTRA			
Inst. ID#			7		8		9	1	0	1	1	12	
Serial # / P	robe #	1262		2385	1931	2385	1931	1370	1158	2378	1956		
Cal. Due D	ate			6-1	4.00	6-14	1.00	4.7	0.00	5.3	3-00		
Survey Dat	te	2/24	100	2.2			2.26.00		2.78.60		9-00		
Alpha Bkg 90-sec count time	Beta Bkg 90-sec count time	5.3	316	8.0	505	3.3	425	6.0	309	4.0	363		
Alpha Eff (%)	Beta Eff (%)	21.67	30.47	21.49	29.94	21.49	29.94	22,0	30.46	L2.35	30.36		
Alpha MDA 90-sec count time	Beta MDA 90-sec count time	51.1 37.9	27.6	58.4 38	291.2	40.5 16.4	32052	50.5-	223.7 200. 6	47.1	244.4		

Page _2_ of __\5_

Survey Area: Survey Unit: Survey Building: 57.53

Survey Unit Description

	Total Surface Activity Data Sheet												
				Ulai v	Juite	ice F	ACLIV	ity D	ala i	SHEE	L		
Sample location	RCT ID#	Inst	ID#	Survey co			AB om)	Gross (gc	Count pm)		ounts om)		ctivity 00cm2)
		α	β	α	β	α	β	α	β	α	β	α	β
B-I wa		1	7	90	90	3.1	338	60	827	3,3	~11	16.0.	- 34
Plww)	90	90	8.0	231	11. 2	3-11	3.3	60	16.0	197
1.2. Sw				90	90	2:7	323	10:7	373	8.0	50	38.7	164
14-2 SW		7		90	90	4.0	314	14.0	96 1	10.0	45	48.4	148
0-2 Ew				90	90	3.3	523	6.7	341	3.4	, 8	16.4	ร์จ์
F. 2 Ew				90	90	4.0	304	i/a3	371	5.3	62	25.6	3 ن ع
M.2 Ew			-7	90	90	٤.3	333	16.0	375	6.7	40	32.4	131
6-2 EW		7		90	90	5, 3	425	<i>j</i> . 3	365	0.0	-44	0.0	210
V-2 Ew				90	90	3. 3	3 2 3	11.3	317	8.0	34	38.7	112
5-1 ph				90	90	4.6	316	8.7	35:	2.1	69	13.1	224
7-3 NW				90	90	5,5	421	14.0	331	8.7	-98	42.1	-322
23 En				90	90	4. n	-129	N.0	353	11.3	74	54.7	249
43 W.		7	7	90	90	60	338	13.3	323	7.3	-15	25.35	-49
4-9R		11	1	90	90	4.0	467	17.3	391	13.3	-78	59.5	- 757
B-13R		11	11.	90	90	3.3	340	18.0	403	14.7	63	658	203
D-4R		11	SAMPLE C	90	90	14.7	451	25.3	399	10.6	-52	47.4	-171
D-35		1)		90	90	2.7	440	25.3	436	22.6		101.1	-13
P-156		11	11	90	90	3.3	332	34.0	437	30.7	105	137.4	346
D-166		1)	11	90	90	3.3	403	17.3	441	14.0	38	62.6	125
E-138		11	1)	90	90	4.0	326	70.0	427	16.0	101	71.6	333
E-SG		11	* *	90	90	6.7	340	31.3	441	24.6	10)	यहार है।	333
F-136		1.1	11	90	90	6.0	345	30.7	459	24.7	114	110.5	375
F-158		1)		90	90	7.3	399	34.0	454	26.7	55	119.5	131
F-20		11	11	90	90	3.3	400	32.0	418	28.7	12	153.4	40
G-9R		1)	11	90	90	7.3	360	28.0		20.7	46	92.6	152
G-168		. 11	11	90	90	6.7	478	79.3	411	22.6	-67	101.1	-221.
H-18		11	li .	90	90	7.0	366	22.7		20.7	119	92.6	392
H-196		1)	11	90	90	4.0	482	30.7	419	26.7	-66	119.5	F15"-
A-2-5 QC		9	9	90	90	2.7	508	8.7	361	4.	-147	27.9	-491.0
H.2.5QC			(90	90	27	439	40	339	1.3	-100	6.0	-334.0
D-Z-EQC		_/_		90	90	3.3	411	6.7	325	3.4	-86	15.8	-287
17-1-NOC		1	<u> </u>	90	90	40	525	12.7	333	8.7	-192	40.5	-641.3
#- <u>1-W</u> QC		g	9	90	90	3.3	391	4.6	287	0.7	-104	3.26	-347

No heasurements are to be collected by a different technician than the original survey. Mark the QC location number in the "Sample Location" column. Material background is assumed to be zero unless otherwise noted. "LAB" ~ local area background.

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Survey Area: N/A Survey Unit: Exterior Building: 1883 B
Survey Unit Description
Exterior Wans

Sample RCT		Removable Con				Counts	Removable Activity		
Location	ID#	#			pm)		pm)	(dpm/	100cm2)
		αβ		α	β	α	β	α	β
F.3.N		1 2	_	.5	38	1 .1	-4	0.3	-16
D-1.N		3 4		.5	48.5	.3	10.8	0.9	43.2
4.2.5	-	1 2		2	46.5	1.6		4.8	18
1.2.5		3 4	- 1	.5	39.5	1.3	4.5	3.9	7.2
.1.W		1 2		1	43	1 1	1.0	1.8	4
2. I.W		3 4		.5	772	1.3	3.8	0.9	15.2
0.3.W		1 2		.5	43.5	1 . 2	1.5	0.3	
2.2.E		34		.5	40	1.3	2.3		6
7.2.E		1 7		5		1.5	1	3.9	9.2
. 2. E			•	5	41	.3	7	0.3	-4
1.2 E				5	43.5	1 . 5	5.8	0.9	23.2
		3 4			44.5	1 .1	2.5	0.3	10
).2.E				2	46.5	1.8	8.8	5.5	35.2
1.2.E		1 2		<u> </u>	43.5	.6	1.5	1.8	6
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	4								
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	-								
					-N				
						11			
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	/-	<del>  -</del>				1	<u> </u>	<del>                                     </del>	
						<del> </del>	<del> </del>	1	
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Survey Area: N/A Survey Unit: Extense Building: T883B

Survey Unit Description

Extense Roof

Sample Location	RCT ID#	Ins:		Gross ( (gc)			ounts pm)		able Activity n/100cm2)	
		α	β	α	β	α .	β	α	β	
1-9e		S	6	0.0	39.5	-0.3	-2.9	-0.9 CW	- 11.6	
5-13R		5	6	2.0	75	1.7	~ 1.4	5.5.5.1	-29.6	
5-4R		S	6	0.0	35	-0.3	-7.4	- 0.9	- 27.6	
5-8R		5	ا ما	1,0	48	6.5	5.6	2.1	72.4	
2-12R		5	اما	1.0	46	0.7	3.6	2.1	14.4	
5-16R		5	ما	0.0	33.5	-03.	-33	- 0.9	- 35.6	
E-13R		S)	اما	1,0	38.5	0.7	-3.9	7.1	- 15.6	
F-38		5	ا حا	1.0	37.5	<u>0.7</u>	-4.9	2.1	- 19.6	
F-13R		2	ا صا	0.0	71	-0.3	-1.4	- 09	-5.6	
F-15R		SON DISTOR	ادا	1.0	42.5	0.7	-6.9	2.1	3.4	
F-20R		2	<u> </u>	1.0	35.5	0.7	-5.4	7.1	- 27.6	
<u>ح عو</u> ۵-168		S S S S S S S S S S S S S S S S S S S	ان ان	1.0	37		-9.9	- 0.3	- 39.L	
H-1R		$\sim$		0.0	32.5	-0.3 -0.7		2.1		
4-19R		5	6	1.0	46.5	-0.3	4.1	- 0.9	16.4	
M-19K		3	6	0.0	38	-0.3	- 1.7	0.1	17,65	
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Page <u>5</u> of <u>(5</u>

Survey Area:	Survey Unit:	TERIOR	Building: 1883	5.5				
Survey Unit Description:	CTELION	· CCIUC	1000	) ()				
RCT Initials/Date: (DV 7/12/107	•	7/4	RCT Initials/Date:	NA				
Refer to the Final Survey NE Electra Se				nation.				
Legend: "R"- Roof, "W" - West Wall, "S" - South Wall, "E" - East Wall, "N" - North Wall  "C" - Ceiling, "F" - Floor								
	NORTH							
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(2)	3							
H-IN			,					
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Results/Comments:

Electra alpha scans were performed at the locations detailed on the survey map(s). All required accessible areas were scanned. All initial scan results were <225 dpm/100cm², unless noted on the survey form.

Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the survey form.



3-337

* Designates corner closest to A-1 point of reference

urvey Area: , \/ \/	Survey Unit:		Building:	
NH	EXIL	ERIOR	7883 B	
EXTER	10R	<u>:</u>		
CT Initials/Date: Uf 2/24/00	RCT Initials/Date:	μ/ĸ	RCT Initials/Date:	
efer to the Final Survey NE Electra Scan	& Investigation Survey Form 1	or instrumentation,	, surveyor & approval information.	
Legend: "R"-Roof, "W"	- West Wall, "S" - South	Wall, "E" - Ea	st Wall, "N" - North Wall	
	"C" –Ceiling, "F	" - Floor		
•	W			
(2)				
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3				
* D-IW	<del></del>	T-1		
· · · · · · · · · · · · · · · · · · ·		:	•	
		N		
			A	
	4			
X				
* X-1W				

Electra alpha scans were performed at the locations detailed on the survey map(s). All required accessible areas were scanned. All initial scan results were <225 dpm/100cm², unless noted on the survey form.

Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the survey form.

Survey Area:	NA	Survey Unit: EX	TERIOR	Building: TE	183B
Survey Unit D	Description: EXT	ERIOR			
RCT Initials/I	Date: Off Unilpo	RCT Initials/Date:	nla	RCT Initials/Dat	e: N/r
Refer to the Fin	nal Survey NE Electra Scan &	& Investigation Survey For	m for instrumentation,	surveyor & approval in	formation.
Leg	gend: "R"- Roof, "W" -	- West Wall, "S" – Sou "C" –Ceiling,	uth Wall, "E" – Eas "F" - Floor	st Wall, "N" – Nort	h Wâll
		S			
			1	2	
	(2)		3	4)	
*	F-15		<b>D</b> -	15	
			N		
*				A	
*	A-15				

* Designates corner closest to A-1 point of reference Results/Comments:

Electra alpha scans were performed at the locations detailed on the survey map(s). All required accessible areas were scanned. All initial scan results were <225 dpm/100cm², unless noted on the survey form.

Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the survey form.



urvey Area:  Urvey Unit Description:	Survey Unit: EXTERIOR	R Building: T883 B
CT Initials/Date: Off 2/24/00	RCT Initials/Date:	RCT Initials/Date: / K
		nentation, surveyor & approval information.
Legend: "R"-Roof, "W"	- West Wall, "S" - South Wall, "C" -Ceiling, "F" - Floor	E" – East Wall, "N" – North Wall r
	EAST	
* X-1E	*	U-IE
* O-1E	*	M-1E

Results/Comments:

Electra alpha scans were performed at the locations detailed on the survey map(s). All required accessible areas were scanned. All initial scan results were <225 dpm/100cm², unless noted on the survey form.

Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the survey form.

3-340

Rev. 020900

Survey	Area:	NA		Survey U	nit:	TER10	R	Building: 188	13B	
Survey	Unit Des	cription:	/VT	ERIOR V					/ <u>()</u>	
		Ele	ectra DP-6 Be	eta V	Electra DP-6 Alpha					
Loc. ID#	RCT ID#	Inst. ID#	Elevated Audible observed? "Y" or "N"	60-sec PAT (dpm/100cm2)	RCT ID#	Inst. ID#	4-sec Audible observed? "Y" or "N"	30-sec Static (gcpm)	90-sec PAT (dpm/100cm ² )	
-IN-I		8	N	NA		8	Y	24	N/A	
1-1N-2		,	N				Y	16		
-IN-1			Ν				У	18		
1-IN-1			N	,			γ	16		
1-IN-2			N				У	28		
1-11/-3			Ŋ				У	18		
).IW-1			N				У	18		
)-IW-Z			N				У	10		
-IW-3			N			-	У	14	-	
-111-1			N				ý	16		
(-IW-1			N				У	18		
15'-1		•	N				У	10		
-15-2			N				у	4		
1-21			N				У	2	, i	
)-15-Z			N				У	16		
1-13-3			N				У	10		
1-15-4			N	·			у	4		
1-15-1			N				Y	8		
(-1E-1			N				у	8		
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2-341

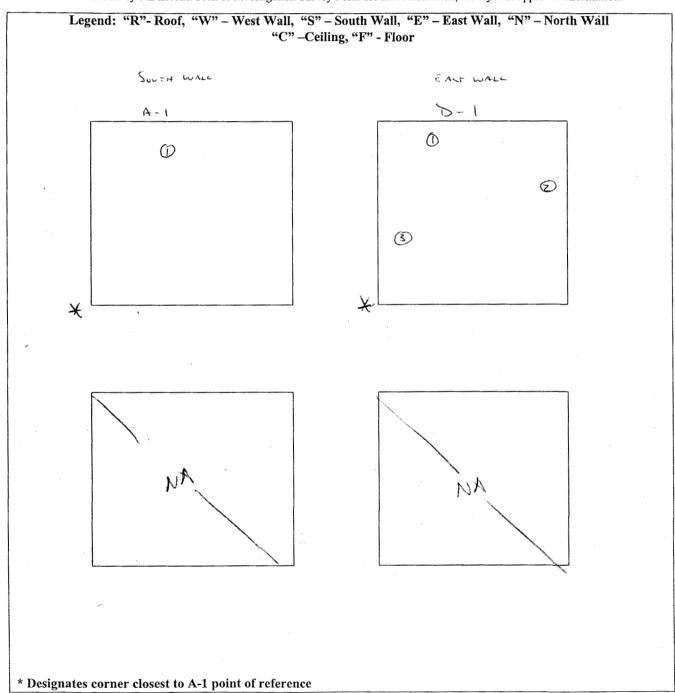
Survey	Area:			Survey U				Building:		
Survey	Unit Des	cription:	/A		Exten			78	¥3 /3	
			Exien	INA WALL	s QC Scans					
Loc.					Electra DP-6 Alpha					
ID#	RCT ID#	Inst. ID#	Elevated Audible observed? "Y" or "N"	60-sec PAT (dpm/100cm2)	RCT ID#	Inst. ID#	4-sec Audible observed? "Y" or "N"	30-sec Static (gcpm)	90-sec PAT (dpm/100cm ² )	
Sw A-1-1		10	$\sim$	N4		10	>	10.0	NA	
D-1-1		10	~	NA		10	у	ن . ۶.	NA.	
D-1-2		رر		NA.		10	У	10,0	NA	
5-1-3		10	N	, u A		10	У	12.0	<b>ا</b> ر سر	
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3-342

Survey Area:	Survey Unit:	Building:
N.A.	Ex1812 10.2	7-88313
Survey Unit Description:		
	Extenses when QC	Schus
RCT Initials/Date:	RCT Initials/Date: NA	RCT Initials/Date: NA

Refer to the Final Survey NE Electra Scan & Investigation Survey Form for instrumentation, surveyor & approval information.

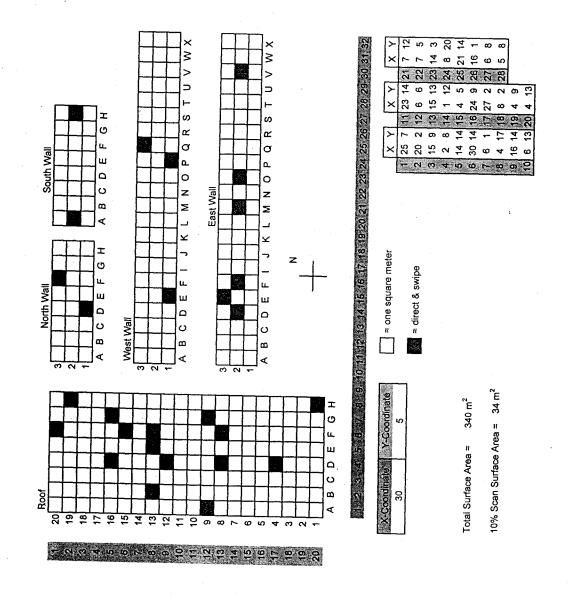


Results/Comments:

Electra alpha scans were performed at the locations detailed on the survey map(s). All required accessible areas were scanned. All initial scan results were <225 dpm/100cm², unless noted on the survey form.

Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the survey form.

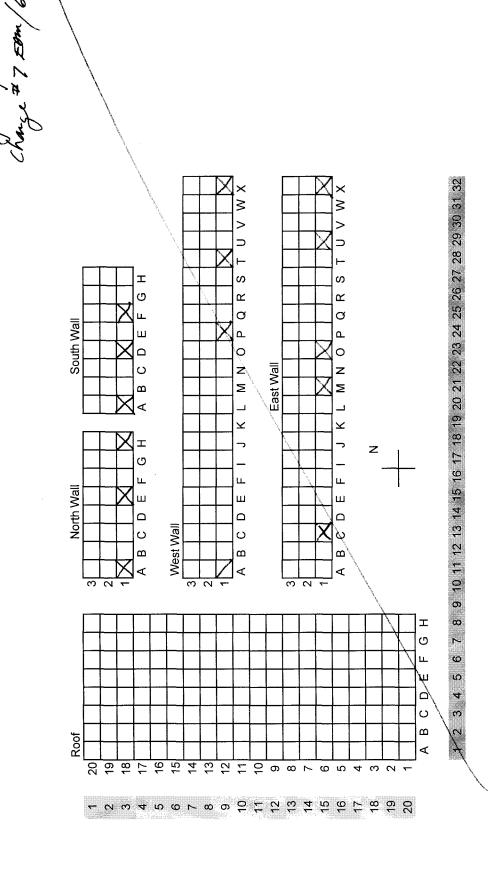




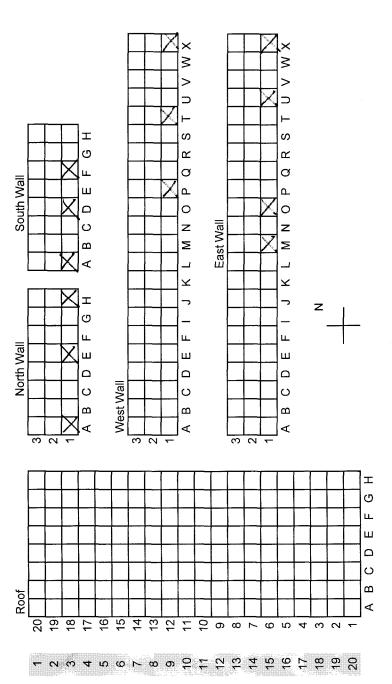
3-344

127/242 Ro

Package ID: 2000-01 Building: T883B Survey Unit: Exterior



Package ID: 2000-01 Building: T883B Survey Unit: Exterior



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32

Survey Area: MA St	rvey Unit: Building:	7-14313
Survey Unit Description	The second secon	
	Middle All And Season	

#### SURVEY SIGNATURE SHEET

#### Removable /Total Surface Activity Performed By

RCT Printed Name		sitelly	3.3.0w
TOT Filited Name		RCT Signature	Date
RCT Printed Name			
RC1 Philled Name	Employee #	RCT Signature	Date
	·		
RCT Printed Name	Employee #	RCT Signature	Date
		The state of the s	
RCT Printed Name	Employee #	RCT Signature	Date
	THE STOP MET THE THE WASHINGTON THE PARTY OF	4	
RCT Printed Name	Employee #	RCT Signature	Date
RCF Printed Name	Employee #	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date
			Date

#### **Quality Control Measurements Performed By**

RCT Printed Name	Employee #	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date
RCT Printed Name	Employee#	RCT Signature	Date
	à		
RCT Printed Name	Employee #	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date

Survey Reviewed By

Roy Worston		314
RCT Foreman Printed Name	RCT Foreman Signature	Date

Page ___ of ___

25/0

Survey Area:	NA	Survey Unit:	Extended	Building:	8833
Survey Unit Des					
		9 30 4 N. G. J.	. 7. dia.	Same	

## INSTRUMENT DATA SHEET Removable Contamination Survey Instrument Data

Manufacturer						
Model						
Inst. ID#	1	2	3	4	5	6
Serial #					and the same of th	
Cal. Due Date				and the same transfer of the s		
Analysis Date				3		
Instrument Bkg cm 10-min count time			and the second s	.>.		
Instrument Eff (%)			sur miles			
Instrument MDA 2-min count time						

#### **Total Surface Activity Instrument Data**

<b>6</b>											<u> </u>		
nufactur	facturer N.E. Tech.		N.E.	Tech.	N.E. Tech.								
Model	lodel		ctra	Ele	ectra	Electra							
Inst. ID#	st. ID #		7		8 9		10		1	1	1	2	
Serial # / P	robe #	1355	1348						,				
Cal. Due D	ate		14.00					۸ż					
Survey Dat	e	3 - 1	· · · ·										
Alpha Bkg 90-sec (m) count time	Beta Bkg 90-sec	4.7	437										
Alpha Eff (%)	Beta Eff (%)	21.03	29.83							·			
Alpha MDA 90-sec count time	Beta MDA 90-sec count time	47.4	212-3										

dim t

Page ___ of ___

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Survey	Area:			Survey Ur	nit:			Building:			
		MA				1 6 B 130	,	7-85	3 3		
Survey Unit Description: WALL 3/3/cc											
		Ele	ectra DP-6 B	eta	Electra DP-6 Alpha						
Loc. ID#	RCT ID#	Inst. ID#	Elevated Audible observed? "Y" or "N"	60-sec PAT (dpm/100cm2)	RCT ID#	Inst. ID#	4-sec Audible observed? "Y" or "N"	30-sec Static (gcpm)	90-sec PAT (dpm/100cm ² )		
A.ZNI		•	2	NA .		Ł	У	18.0	NA		
E-2N1		1	<i>,</i> ~	,WA			У	8.0	NA		
EVZNZ		(	ν.	MA			у	10.0	NA		
E-3 N3		1	N	7 hot 84		ŧ	У	14.0	pla		
14-2N1		1 .	N	N.4		•	У	20.0	pess		
4-202		1	N	IVA		*	<u> </u>	.14.0	M		
14-2 N3		1	,V	, WA		Ì	У	14.0	INT		
A-251		!	W	.444		*	<u> </u>	10.0	art		
A-252			N	بالمامان ب		1813-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1		4.0	- Autora		
5-251		1	. //	144			<u> </u>	16.0	NA.		
H-251		1	N				y	12.2	ner.		
11-252		j	N	jun		A. C.	У	15.0	· Not ·		
4.2W1		J	jui .	10,4			y	16.0	NA		
FZW		1	للا	MA			***	ant.	104		
F. 2. W1			· ~	Ni		<u> </u>	У	8.0	NA.		
P. Zwi		-	زرن	pra.		987	У	12.0	A'A		
R-241		1	N	NA		3	À	12.0	in		
2-202	-		N.	NA		ig 	У	14.0	R.A.		
X-2 WI			. N	. N.1		Đ.	у.	8.0	NA		
DIE			~	, M			У	12.0	NA		
F-2 =1	1		<u></u>	NA			У	12.0	NA		
E-SEZ			- N	,vA		-	y.	i. i.v	NA		
M-Z E1		· 1	~	M		All the second	У	18.0	Nist		
0-Z E1			N	M		-adjon-	Y.	8.0	NA		
0-252			N	NA		<u> </u>	У	6.0	N.A		
V-2E		ŧ	$\sim$	NA		ž.	N	NA.	NA		

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Page of

Survey Area:	Survey Unit:	Building:
Survey Unit Description:	ier Walls	7-5833
	RCT Initials/Date: AA	RCT Initials/Date:
Refer to the Final Survey NE Electra Scan & In		•
Legend: "R"- Roof, "W" - W	Vest Wall, "S" – South Wall, "E" - "C" –Ceiling, "F" - Floor	- East Wall, "N" - North Wall
		•
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* Designates corner closest to A-1 point		

Results/Comments:

Electra alpha scans were performed at the locations detailed on the survey map(s). All required accessible areas were scanned. All initial scan results were <225 dpm/100cm², unless noted on the survey form.

Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the survey form.

rvey Area:	r / A	Survey Unit:	Building:	7-8833
rvey Unit D	escription:	Extense Wares		
CT Initials/D	pate: /4 /3.300	RCT Initials/Date:	RCT Initials/D	ate: NÄ
		Investigation Survey Form for inst		•
Leg	end: "R"- Roof, "W" - V	West Wall, "S" – South Wall, "C" –Ceiling, "F" - Flo		rth Wall
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Results/Comments:

Rev. 020900

Electra alpha scans were performed at the locations detailed on the survey map(s). All required accessible areas were scanned. All initial scan results were <225 dpm/100cm², unless noted on the survey form.

Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the survey form.

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Page

	Date: 10 / 3 3.65	RCT Initials/Date			ls/Date: ♦À
	al Survey NE Electra Scan &				•
Leg	end: "R"-Roof, "W"-		South Wall, "E" ng, "F" - Floor	– East Wall, "N" –	North Wall
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Results/Comments:

Electra alpha scans were performed at the locations detailed on the survey map(s). All required accessible areas were scanned. All initial scan results were <225 dpm/100cm², unless noted on the survey form.

Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the survey form.

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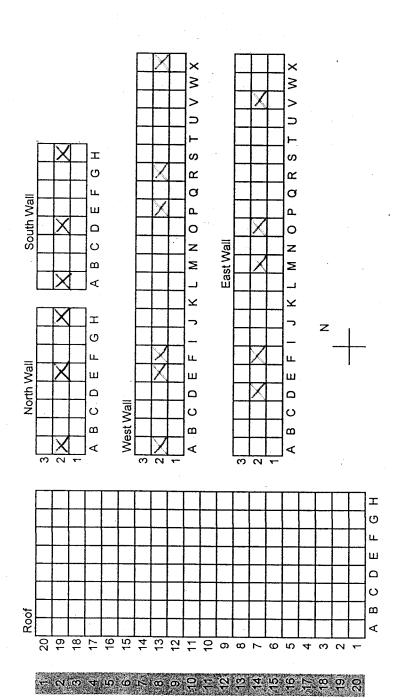
Survey Area:		Survey Unit:		Building:	
Survey Unit D	Oescription:	1 2778	12:0:2	1-1	833
		HOK WALLS	-		
RCT Initials/D	j.		NA	RCT Initials/Date:	Ala
	al Survey NE Electra Scan & In				
Leg	end: "R"- Roof, "W" - W	est Wall, "S" - South	ı Wall, "E" – East	t Wall, "N" - North	Wall
		"C" -Ceiling, "I	- F100r		
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* Designates	corner closest to A-1 point	of reference			

Electra alpha scans were performed at the locations detailed on the survey map(s). All required accessible areas were scanned. All initial scan results were <225 dpm/100cm², unless noted on the survey form.

Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the survey form.

3-353

Package ID: 2000-01's Building: T883B Survey Unit: Exterior



**152-Σ** 

Survey Area: NA Survey Unit: EXTERIOR Building: 1883 B

Survey Unit Description

Exterior

# **SURVEY SIGNATURE SHEET**

## Removable /Total Surface Activity Performed By

Archie Parlaw RCT Printed Name		RCT Signature	3-8-00 Date
1011 tilled Name		Two i Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date
-	·		
RCT Printed Name	Employee #	RCT Signature	Date
	N		
RCT Printed Name	Employee#	RCT Signature	Date
	A		
RCT Printed Name	Employee #	RCT Signature	Date
BeT Printed Name	Employee #	RCT Signature	Date
			-
RCT Printed Name	Employee #	RCT Signature	Date

## **Quality Control Measurements Performed By**

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RCT Printed Name	Employee #	RCT Signature	Date
RCT Printed Name	Employee #	ReT Signature	Date
	N		
RCT Printed Name	Employee #	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date
			·
RCT Printed Name	Employee #	RCT Signature	Date

Survey Reviewed By

ZUN WorGen		144 0
RCT Foreman Printed Name	RCT Foreman Signature	Date

Survey Area: N/A	Survey Unit: EXTERIÓR	Building: Tog3 B
<b>Survey Unit Descriptio</b>	n ,	<b>9</b> 180 <b>9</b>
	EXTERIM	

### **INSTRUMENT DATA SHEET** Removable Contamination Survey Instrument Data Manufacturer Model Inst. ID# 4 6 Serial # Cal. Due Date Analysis Date Instrument Bkg cpm 10-min count time Instrument Eff (%) Instrument MDA 2-min count time dpm

## **Total Surface Activity Instrument Data**

		_ <del></del> .				=							
Manufactur	rer	N.E.	Tech.	N.E.	Tech.	N.E.	Tech.						
Model		Ele	ctra	Ele	ectra	Ele	ectra		*		· · · · · · · · · · · · · · · · · · ·		
Inst. ID#			7	<u> </u>	8		9	-	10	- 1	1/	1	2
Serial # / P	robe #	2378	1956										
Cal. Due D	ate		00.								1		·
Survey Dat	e		00.8				$\overline{N}$						
Alpha Bkg 90-sec cym count time	Beta Bkg 90-sec cym count time	2.0	517					A					
Alpha Eff (%)	Beta Eff (%)	22.35	30.36										
Alpha MDA 90-sec dym count time	Beta MDA 90-sec dym count time	32.1	290.5										

Page 2 of ±15 3-356

Survey		NA		Survey Ur	it: EXT	ERIOV	1	Building: T883	B
Survey	Unit Des	cription:		riregina		0.001		(000	
		Ele	ectra DP-6 Be	EXTERIOR			Electra Di	P. 6. Alpha	
Loc. ID#	RCT ID#	Inst. ID#	Elevated Audible observed?	60-sec PAT (dpm/100cm2)	RCT ID#	Inst. ID#	4-sec Audible observed? "Y" or "N"	30-sec Static (gcpm)	90-sec PAT (dpm/100cm ²
H.I.S	ı		"Y" or "N"	. 1/ .					
A.I.W		1	N	N/A		7	N	N/A	NA
		7	_ N	N/A		1	N	N/A	NA
4.1.E		7	N	NN		7	N	NIA	N/A
D.1.E		7	N	N/A		7	N	N/M	N/A
D-1M1		1	$\sim$	NA		7	У	18	N/A
) IW. 2		1_	$\sim$	N/A		7	У	10	NM
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	Scan & Investigation Surve	ey Map
Survey Area:	Survey Unit: EXTERION	Building: TOO2 D
Survey Unit Description:	EXTERIOR	7 883 B
RCT Initials/Date(D) 3.8-00		
/ /	RCT Initials/Date: an & Investigation Survey Form for instrumenta	RCT Initials/Date:
Legend: "R"-Roof, "W	"- West Wall, "S" - South Wall, "E"	- East Wall, "N" - North Wall
	"C" -Ceiling, "F" - Floor	
D-1-V	$\checkmark$	
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* Designates corner closest to A-1 po	oint of reference	

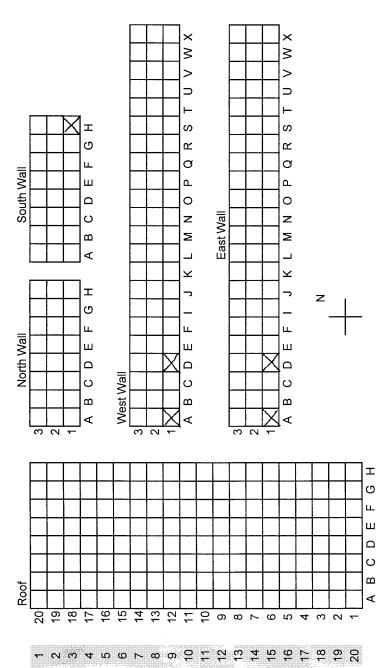
Results/Comments:

Electra alpha scans were performed at the locations detailed on the survey map(s). All required accessible areas were scanned. All initial scan results were <225 dpm/100cm², unless noted on the survey form.

Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the

21,7

Packing ID: 2000-01 Building: T883B Survey Unit: Exterior



1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32

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A A

Survey Area: NA Survey Unit: EXTENSOR Building: 7883 B

Survey Unit Description

ROOF 9 PT. INVESTIGATION SCAN

## **SURVEY SIGNATURE SHEET**

### Removable /Total Surface Activity Performed By

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RCT Printed Name		RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date
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RCT Printed Name	Employee #	RCT Signature	Date
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	and the same of th	·	·
RCT Printed Name	Employee #	RCT Signature	Date ·
RCT Printed Name	Employee #	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date

## **Quality Control Measurements Performed By**

RCT Printed Name	Employee #	RCT Signature	Date
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RCT Printed Name	Employee #	RCT Signature	Date
	1		
RCT Printed Name	Employee #	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date

Survey Reviewed By

RCT Foreman Printed Name RCT Foreman Signature Date

Page of 5 3-360

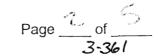
Survey Area: NA Survey Unit: EXTERIOR Building: 7883 B
Survey Unit Description

ROOF 9PT INVESTIGATION SCAN

#### **INSTRUMENT DATA SHEET Removable Contamination Survey Instrument Data** Manufacturer Model Inst. ID# 2 3 4 5 Serial # Cal. Due Date Analysis Date Instrument Bkg cpm 10-min count time Instrument Eff (%) Instrument MDA 2-min count time dom

## **Total Surface Activity Instrument Data**

Manufactur	er	N.E.	Tech.	N.E.	Tech.	N.E.	Tech.						
Model		Ele	ctra	Ele	ctra	Ele	ectra		-				-
Inst. ID#		7	,		8		9	1	0	- 1	1	1.	2
Serial # / P		2376	1921										-
Cal. Due D			3-00				٨						
Survey Dat	e		3-00					4					
Alpha Bkg 90-sec pm count time	Beta Bkg 90-sec cem count time	1.3	486			/							
Alpha Eff (%)	Beta Eff (%)	20.46	29.70										
Alpha MDA 90-sec	Beta MDA 90-sec 2 count time	30.0	288.1	/									



Survey	Area:			Survey	Unit:		· · · · · · · · · · · · · · · · · · ·	Building:		
Commen	II. a D		NA EXTERIOR 7883 B  otion:  ROOF 9 PT INVESTIGATION SCAN							
Survey	Unit Des			9 19	T 11	VE :	TIGATIO	on sc	AN	
T		Ele	ectra DP-6 Be	eta	T INVESTIGATION SCAN Electra DP-6 Alpha					
Loc. ID#	RCT ID#	Inst. ID#	Elevated Audible observed? "Y" or "N"	60-sec PAT (dpm/100cm2)	RCT ID#	Inst. ID#	4-sec Audible observed? "Y" or "N"	30-sec Static (gcpm)	90-sec PAT (dpm/100cm ² )	
H-19R1						7	·		23.3	
H-19RZ						7			27.3	
H-19R3						7			17.3	
H-19R4						7	<u></u>		20.0	
H-19R5			N			7	//	1 A	27,3	
H-19R6			A			7			17.3	
H-19R7						7			27.3	
11-1988	/					7	/		12.3	
H-19R9						7	/		20.0	
								Im2Avg->	21.9	
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Survey Area:		Survey Unit:		Building:	·
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urvey Unit D				$\Omega$	3.300
	ROOF	9 PT INVE	ESTIGATIO	ON SEAT	7
CT Initials/I	Date: PC 3-3-0	© RCT Initials/Date:	NA	RCT Initials/Date:	NA
efer to the Fin	al Survey NE Electra Scan &	& Investigation Survey Fo	rm for instrumentation	, surveyor & approval infor	mation.
Leg	gend: "R"- Roof, "W"-	- West Wall, "S" - So	uth Wall, "E" - Ea	st Wall, "N" - North	Wàll
		"C" -Ceiling,	, "F" - Floor	•	
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* Designates corner closest to A-1 point of reference Results/Comments:

Electra alpha scans were performed at the locations detailed on the survey map(s). All required accessible areas were scanned. All initial scan results were <225 dpm/100cm², unless noted on the survey form.

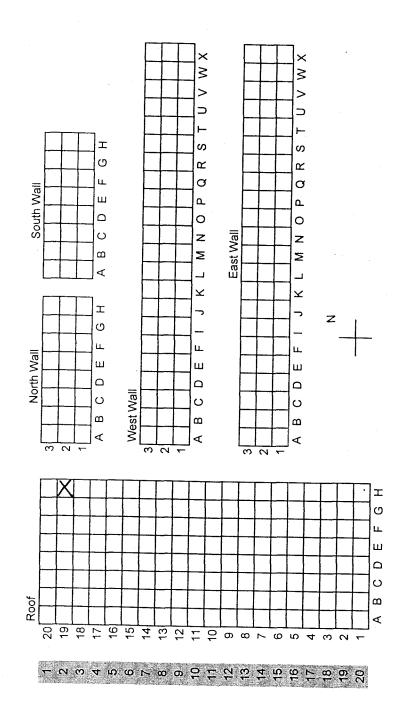
Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the survey form.

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Page 4 of 5

Package ID: 2000-01 Building: T883B Survey Unit: Exterior



9- POINT INVESTIGATION

LOCA TION

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Survey Area: AA Si	urvey Unit:	7713 4 2 2 2 3 3
Survey Unit Description	And the second s	
	ROME SomePLE COLATIONS	

# **SURVEY SIGNATURE SHEET**

## Removable /Total Surface Activity Performed By

	-		
1 Lowson		Notour	3-28-00
RCT Printed Name		RCT Signature	Date
- Proceed		4. A. J.	3-28-00
RCT Printed Name		RCT Signature	Date
			the state of the s
RCT Printed Name	Employee #	RCT Signature	Date
	N		
RCT Printed Name	/ Employee #	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date
		<b>/</b> 1	
RCI Printed Name	Employee #	RCT Signature	Date
	4		
RCT Printed Name	Employee #	RCT Signature	Date

# **Quality Control Measurements Performed By**

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NOT written Name	Employee #	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date
	N		e di en la segui di periodi de la segui
RCT Printed Name	Employee#	RCT Signature	Date
		<b>/</b>	gradina Subsection
RCT Printed Name	Employee #	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date

**Survey Reviewed By** 

SCERNA	lem	3-29-0.	
RCT Foreman Printed Name	RCT Forem	nan Signature Date	

Survey Area: NA	Survey Unit:	Exterior	Building: T883B	
Survey Unit Descript	tion			
	Roof Sample Locat	ion		

# **INSTRUMENT DATA SHEET**

# **Removable Contamination Survey Instrument Data**

<u>Manufacturer</u>	EBERLINE	EBERLINE	EBERLINE	EBERLINE		
Model	SAC4	BC4	SAC4	BC4		
inst. ID #	1	2	3	4	5	6
Serial #	823	966	1171	868		
Cal. Due Date	9/6/00	9/15/00	7/11/00	7/12/00		
Analysis Date	3/28/00	3/28/00	3/28/00	3/28/00		
Instrument Bkg.cpm 10-min count time	0.5	42.9	0.3	35.2		
Instrument Eff (%)	33	25	33	25		
Instrument MDA 2-min count time	9.6	72.2	8.3	65.9	#DIV/0!	#DIV/0!

## **Total Surface Activity Instrument Data**

			-										
Manufact	urer	N.E.	Гесh.	N.E.	Tech.	N.E.	Tech.	N.E.	Tech.			/	
Model		Elec	ctra	Elec	ctra	Elec	ctra	Ele	ctra_				
Inst. ID #			7	×	3	į.	9	1	0	1	1	1	2
Serial # / F	Probe #	2374	1919	2376	1921								
Cal. Due D	ate	9/8	/00	8/23	3/00								
Survey Da	ite	3/28	3/00	3/28	3/00								***
	Beta Bkg 90 sec count time ^{Cpm}	4.7	406	3.3	407			gar.	e e				
Alpha Eff (%)	Beta Eff (%)	20.85	29.89	20.46	29.7			and the second s					
90-sec dpm	Beta MDA 90-sec dym count time	48.2	262	42.6	264	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!



Survey Area:		Survey Unit:	Eureeioe	Building:
Survey Unit Description:	R00(	Sample	LOCATION	
RCT Initials/Date:		•		RCT Initials/Date: NA

Refer to the Final Survey NE Electra Scan & Investigation Survey Form for instrumentation, surveyor & approval information.

Legend: "R"-Roof, "W" - West Wall, "S" - South Wall, "E" - East Wall, "N" - North Wall "C" -Ceiling, "F" - Floor H-19R F-ZOR & SAMPLE CUTOUT * Designates corner closest to A-1 point of reference

Results/Comments:

Electra alpha scans were performed at the locations detailed on the survey map(s). All required accessible areas were scanned. All initial scan results were <225 dpm/100cm², unless noted on the survey form.

Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the survey form.

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Page 3 of 5

Survey Area: NA	Survey Unit:	EXTERIOR	Building: T883B	
<b>Survey Unit Description</b>				
	ROOF SAMPLE LOCA	TIONS		

Sample location	RCT ID	Inst	ID #		ount time ec)	Gross (gc)		LA (cp		Net c	ounts	Net A (dpm/1	ctivity
TOGGETOTT	"	α	β	α	β	α	β	α	β	α	β	α	β
PRE				90	90		<u> </u>			0.0	0	0.0	0
F-20R		7	7	90	90	24.0	478	5.3	419	18.7	59	89.7	197
POST				90	90					0.0	0	0.0	0
F-20R		7	7	90	90	37.3	412	8.7	385	28.6	27	137.2	90
PRE				90	90					0.0	0	0.0	0
F-20RQC		8	8	90	90	40.0	463	8.0	405	32.0	58	156.4	195
POST				90	90					0.0	0	0.0	0
F-20RQC		8	8	90	90	24.7	485	7.3	415	17.4	70	85.0	236
PRE				90	90					0.0	0	0.0	_ 0
H-19R		7	7	90	90	39.3	461	10.7	403	28.6	58	137.2	194
POST				90	90					0.0	0	0.0	0
H-19R		7	7	90	90	22.7	437	7.3	444	15.4	-7	73.9	-23
				90	90					0.0	0	0.0	
				90	90					0.0	0	0.0	0
				90	90					0.0	0	0.0	0
				90	90				_	0.0	0	0.0	0
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QC	$\vdash$	$-\!\!/-$		90	90					0.0	0	0.0	0
QC				90	90					0.0	0	0.0	0
QC				90	90					0.0	0	0.0	0
QC QC				90	90					0.0	0	0.0	0

**Note**: QC measurements are to be collected by a different technician than the original survey. Mark the QC location number in the "Sample Location" column. Material background is assumed to be zero unless otherwise noted. "LAB"  $\sim$  local area background. Page  $\frac{\mathcal{A}}{2}$  of  $\frac{\mathcal{L}}{2}$ 

Survey Area: NA Survey Unit: EXTERIOR Building: T883B
Survey Unit Description ROOF SAMPLE LOCATIONS

		Re	emo	vable C	ontami	nation	Data Si	neet	
Sample location	RCT ID		t ID #	Gross Counts	(gcpm)		Counts pm)		ole Activity 00cm2)
		α	β	α	β	α	β	α	β
PRE						0	0	0.0	0
F-20R		1	2	1	32.5	0.5	-10.4	1.5	-42
POST						0	0	0.0	0
F-20R_		3	4	11	42.5	0.7	7.3	2.1	29
PRE						0	0	0.0	0
-20RQC		1	2	1	36.5	0.5	-6.4	1.5	-26
POST						0	0	0.0	0
-20RQC		3	4	1	36	0.7	0.8_	2.1	3
PRE						0	0_	0.0	0
H-19R		1	2	1.5	39	11	-3.9	3.0	-16
POST						0	0	0.0	0
H-19R		3	4	0.5	46.5	0.2	11.3	0.6	45
						0	0	0.0	0
						0	0	0.0	0/
						0	0	0.0	/0
						0	0	0.0	0
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#### SURVEY PACKAGE COVER SHEET

Package ID: 2000-01	Building: T883C				
Survey Area: Not Applicable	Survey Unit: Interior				
<b>Survey Unit Description:</b> This office trailer was constructed/assembled at this site, Cedar Avenue and Eighth Street, directly east of Building 883, in April 1991. The size of this trailer is approximately 28' X 70' and it is assembled from 2 trailer units of approximately 14' X 70' feet in size.					
Building Information:					
Survey Type: Reconnaissance Level Characterization	on Survey  Final Status Survey X				
Building Type: Type 1 X Type 2 □ Type 3 □	·				
Classification: Class 1  Class 2  Class 3 X U	Jnknown □	·			
Contaminants of Concern: Plutonium X Uranium	X Other □				
Justification for Classification: This facility contamination.	y has no known history of radio	logical			
Special Support Requirements: Ladder, mainstrumentation may be required for surveying upper walls and ceilings on the interior and upper walls are ceilings.	ng in overhead areas. Overhead	areas include			
<b>Special Safety Precautions:</b> Access to overhead areas may require additional controls. Use caution when working in overheads.					
Isolation Controls:					
Level 1  Level 2 X N/A					
Labeling Requirements: The location wher be marked using a sticker or a marker and the	· · · · · · · · · · · · · · · · · · ·	~			
Survey Package Implementation:					
	$\wedge$				
RICK ROBERTS	I was a second of the second o	1/23/200			
Radiological Engineer Printed Name	Radiological Engineer Signature	Date			
NOT APPLICABLE	N/A	N/A			
REFS Manager Printed Name	REFS Manager Signature	Date			
H. B. ESTABROOKS	The Saladay	1/2/13			
RESS Manager Printed Name	RESS Manager Signature	Date			
Survey Package Closure:					
RICK ROBERTS DIM 1/3/50 ERIC D. MCKAMEY	and the form	2,3 0			
RESS Radiological Engineer Printed Name NOT APPLICABLE	SS Radiological Engineer Signature  /A	Date NI/A			
		N/A			
REFS Manager Printed Name	FS Manager Signature	Date /2 /a a			
JW MARSHEY	TE Hofrage	0/3/00			
RESS Manager Printed Name	Manager Signature 1	Date			

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### SURVEY PACKAGE TRACKING FORM

<b>Package ID:</b> 2000-01		Building: T883C			
Survey Area: Not Applic	cable	Survey Unit: Interior			
Initiator/ Date	Release Date	Validation Date	Closure Date		
MAN 1131100	1121100	22×4 5 6 90	KS004 8 8 100		
			1		
	-				
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### SURVEY PACKAGE CORRECTION/CHANGE HISTORY FORM

Package ID: 2	000-01	Building: T883C			
Survey Area:	Not Applicable	Survey Unit: Interior			
Change #	Description		Initiator/ Date	PRE	
1	Person son ways	per letter	Letter Siller		
	The state of the s	Zillet		John Same	
2-	Decare and a stranger per		EM Willis	1998 <u> </u>	
	1882-002-00 Lakel	14120			
3	Coverted Scan requirement		EMY/6-20.00	A-	
	U		'		
		-			
				****	
		, , , , , , , , , , , , , , , , , , , ,			

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#### INITIAL SURVEY PACKAGE DESIGN FORM

Package ID: 200	0-01	Building: T883C		Type: 1		
Survey Area: No	t Applicable	Survey Unit: Inte	erior	Area (m²): 662		
and Eighth Stre	eet, directly east	of Building 883,	nstructed/assem in <b>A</b> pril 1991. 7 m 2 trailer units	The size of this t	railer is	
Survey Type:		·	Classification:			
RLC Survey □	FSS X		Class 1 □ Class :	2  Class 3 X Un	known 🗆	
Random/Uniform Surface Activity Measurements	Biased Surface Activity Measurements	Equipment Surface Activity Measurements	Media Samples	Volumetric Samples	Surface Activity Scans	
28	0	0	0	0	Biased	
Building:	<del></del>	Type:		Survey Area:		
Survey Unit:			Area (m²):	ann an de seul ann ann ann ann ann ann an an an de ann an de an an an an an aige an aige an de an Ann an Ann a		
Survey Unit Desc	eription:	HOUSE CONTRACTOR OF THE CONTRA				
Survey Type:			Classification:			
RLC Survey □	FSS □		Class 1   Class 2	2 □ Class 3 □ U	Jnknown □	
Random/Uniform Surface Activity Measurements	Biased Surface Activity Measurements	Equipment Surface Activity Measurements	Media Samples	Volumetric Samples	Surface Activity Scans	
Building:		Туре:	Survey Area:			
Survey Unit:			Area (m²):			
Survey Unit Desc	cription:					
Survey Type:		4	Classification:	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
RLC Survey □	FSS □		Class 1  Class:	2□ Class 3□ U	Jnknown □	
Random/Uniform Surface Activity Measurements	Biased Surface Activity Measurements	Equipment Surface Activity Measurements	Media Samples	Volumetric Samples	Surface Activity Scans	
Building: Type:			Survey Area:			
Survey Unit:			Area (m²):			
Survey Unit Desc	cription:					
Survey Type:		COLLEGE COLLEG	Classification:			
RLC Survey □	FSS □		Class 1   Class	2 □ Class 3 □ U	Jnknown □	
Random/Uniform Surface Activity Measurements	Biased Surface Activity Measurements	Equipment Surface Activity Measurements	Media Samples	Volumetric Samples	Surface Activity Scans	
					·	

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#### SURVEY PACKAGE SURVEY/SAMPLING INSTRUCTIONS FORM

Package ID: 2000-01	Building: T883C
Survey Area: Not Applicable	Survey Unit: Interior

**Survey Unit Description:** This office trailer was constructed/assembled at this site, Cedar Avenue and Eighth Street, directly east of Building 883, in April 1991. The size of this trailer is approximately 28' X 70' and it is assembled from 2 trailer units of approximately 14' X 70' feet in size.

	Minimum Survey/Sampling Measure	ment Requirements
Measurement	Number and Type	Comments
Surface Activity	INTERIOR FLOORS/WALLS/CEILINGS:	SEE NOTE 1
Measurements	28 surveys will be taken per the attached survey	SEE NOTE 2
	map.	SEE NOTE 3
		SEE NOTE 4
	QUALITY ASSURANCE SURVEYS	SEE NOTE 5
	QUALITY ASSERTANCE SERVETS	SEE NOTE 6
	INTERIOR FLOORS/WALLS/CEILINGS:	
	5 surveys will be taken per direction from radiological engineering.	
	•	
	·	

#### SURVEY PACKAGE SURVEY/SAMPLING INSTRUCTIONS FORM (cont)

Package ID: 2000-01	Building: T883C
Survey Area: Not Applicable	Survey Unit: Interior

**Survey Unit Description:** This office trailer was constructed/assembled at this site, Cedar Avenue and Eighth Street, directly east of Building 883, in April 1991. The size of this trailer is approximately 28' X 70' and it is assembled from 2 trailer units of approximately 14' X 70' feet in size.

	Minimum Survey/Sampling Measure	ment Requirements
Measurement	Number and Type	Comments
Surface Scanning  Charge #3  Emu 962000	INTERIOR FLOORS: Biased surface scans will be performed on the interior floors in areas where contamination would accumulate. This includes seams, cracks, corners, doorways and boundaries between different types of flooring.  No more than 10% of the total area will be scanned.  QUALITY ASSURANCE SCAN SURVEYS INTERIOR FLOORS: 5 percent of total number of scans or of total scan area will be taken per direction from radiological engineering.	SEE NOTE 1 SEE NOTE 2 SEE NOTE 3 SEE NOTE 4 SEE NOTE 5 SEE NOTE 6
Media Samples	NONE	
Volumetric Samples	NONE	
Isotopic Gamma Scans	NONE	

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#### SURVEY PACKAGE SURVEY/SAMPLING INSTRUCTIONS FORM (cont)

Package ID: 2000-01	Building: T883C
Survey Area: Not Applicable	Survey Unit: Interior

**Survey Unit Description:** This office trailer was constructed/assembled at this site, Cedar Avenue and Eighth Street, directly east of Building 883, in April 1991. The size of this trailer is approximately 28' X 70' and it is assembled from 2 trailer units of approximately 14' X 70' feet in size.

#### Survey/Sampling Instructions

**NOTE 1:** Surveys of the area were established on a random basis and are delineated on page 14, RSFORMS-16.01-10, of the survey package. Survey points will be taken in the middle of the survey grid and will be cross-referenced to a common reference point in the trailer. These surveys will be taken in accordance with PRO-476-RSP-16.02, "Radiological Surveys of Surfaces and Structures", for the following:

- Total alpha contamination
- Total beta contamination
- Removable alpha contamination
- Removable beta contamination
- Biased scan measurements for alpha then beta/gamma contamination

For total alpha and total beta surveys, the LAB will be determined at each survey point by placing a piece of plywood over the probe face that is at least 0.5 inch thick and performing an alpha count and a beta count. The material background for both total alpha surveys and total beta surveys will be considered to be 0 dpm/100 cm².

Alpha scanning using the NE Electra for the DP6-BD and DP8A probes will be in accordance with Letter SJR-001-99, "Alpha Scan Rates for Building 779 Cluster Final Status Surveys," and Letter SJR-004-99, "Performance of Scan Surveys with the Bicron/NE DP8 Probe for Building 779 Cluster Final Status Surveys," respectively. Beta scanning using the NE Electra.

**NOTE 2:** Quality assurance prescribed surveys of the area will be taken in accordance with PRO-476-RSP-16.02, "Radiological Surveys of Surfaces and Structures" per the requirements in PRO-479-RSP-16.05, "Radiological Survey/Sample Quality Control," for the following:

- Direct alpha contamination
- Direct beta contamination
- Scan measurements for alpha then beta/gamma contamination

The location of quality assurance surveys will be delineated by radiological engineering after the initial surveys are performed. Quality assurance surveys will be performed by a different individual than performed the original survey.

**NOTE 3:** The RCT shall document the results for all surveys performed and maintain with the survey instructions package.

**NOTE 4:** All survey instruments will be performance checked both prior to and after performing surveys, and both performance checks will be documented. Contact Radiological Engineering for direction if an instrument fails the post performance check.

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#### SURVEY PACKAGE SURVEY/SAMPLING INSTRUCTIONS FORM (cont)

Package ID: 2000-01	Building: T883C
Survey Area: Not Applicable	Survey Unit: Interior

**Survey Unit Description:** This office trailer was constructed/assembled at this site, Cedar Avenue and Eighth Street, directly east of Building 883, in April 1991. The size of this trailer is approximately 28' X 70' and it is assembled from 2 trailer units of approximately 14' X 70' feet in size.

#### Survey/Sampling Instructions

**NOTE 5:** The following MDA requirements are a goal for each survey instrument. The MDA shall not exceed the Investigation Levels outlined in NOTE 6.

- 10 dpm/100 cm² for removable alpha contamination
- 50 dpm/100 cm² for total alpha contamination
- 500 dpm/100 cm² for removable beta contamination
- 2500 dpm/100 cm² for total beta contamination
- 150 dpm/100 cm² for alpha scan
- 7500 dpm/100 cm² for beta scan

**NOTE 6:** If a survey result exceeds the following investigation levels, contact radiological engineering before proceeding:

- 15 dpm/100 cm² for removable alpha contamination
- 75 dpm/100 cm² for total alpha contamination
- 750 dpm/100 cm² for removable beta contamination
- 3750 dpm/100 cm² for total beta contamination
- 225 dpm/100 cm² for alpha scan
- 11250 dpm/100 cm² for beta scan

An investigation will be performed into the elevated results.

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			TOTAL	SURFACI	E ACTIV	ITY SURV	EY DATA I	ORM			
Survey Area: NOT APPLICABLE			Survey Unit: INTERIOR				Building: T883C				
Street, d	Survey Unit Description: This office trailer was constructed/assembled at this site, Cedar Avenue and Eighth Street, directly east of Building 883, in April 1991. The size of this trailer is approximately 28' X 70' and it is assembled from 2 trailer units of approximately 14' X 70' feet in size.										
				Total	Surface	Instrument	Data	······································			
Date / Time											
β,γ Effici	ency (%): α		βγ	(cı	 pm/dpm)	Mat. Area	Bkgd: α		βγ	(dpm	/100 cm ² )
MDC	(dpm/100 cm ²	): α		βν							
Probe Cal. I	Correction Fac Oue Date:	ctor: α		βγ	(1	<u>00 cm²/prob</u> Surv		Alpha	Beta	_	
				<u> </u>		ı		1			A
Sample Number	Location / Description		s Counts cpm)		Bkgd om)		Counts cpm)		s Activity 100 cm ² )	Gross A Mat. Aı	Activity Activity - rea Bkgd. 100 cm ² )
-		α	β,γ	α	β,γ	α	β,γ	α	β,γ	α	β,γ
											_
											_
					<del> </del>						
									-	MANUAT.	
· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·									
								-	<u> </u>		
			<del>                                     </del>					<del> </del>	<del>                                     </del>	1.000000	
* (Gross Cts - LAB) ÷ (Eff.) × CF = Gross Activity  **Gross Activity - Mat. Bkg = Net Activity											
RCT Printed N	RCT Printed Name Employee # RCT Signature Date										
RCT Technical	RCT Technical Supervisor Printed Name Employee # RCT Technical Supervisor Signature Date										

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REMOVABLE SURFACE ACTIVITY DATA SURVEY FORM										
	Survey Area: NOT APPLICABLE Survey Unit: INTERIOR Building: T883C									
Street, d	nit Description: irectly east of l	Buildi	ng 883, in A	pril 1991. Th	e size of thi	is trailer is	site, Cedar approxim	r Aven	ue an 28' X	d Eighth 70' and it is
assemble	ed from 2 traile	er unit	s of approxi	mately 14' X $^{\prime}$	70' feet in s	ize.		•		
			\$	Smear Survey I	nstrument D	ata				
Count I	Date / Time:									
l Inst. No	).:			Probe N	o.:					
Inst. Ef	ficiency (%): α		βγ						`	
Cal. Du	dpm/100 cm²): e Date:			<u>ργ</u> inst. BK Survey	.G:α Tvne: Alph	na.	γ Beta-Gamn	(cpm na	Ŋ	·
					1 y p c		Dotta Guarria	ii d		
				Removable	Survey Data	·				
Swipe Number	Location / Description	C	omments	Gross C	1		Counts			le Activity * 100 cm ² )
	·			α	βγ	- α	βγ	C	ί	βγ
-								<u> </u>		***
										*****
								<u> </u>		
		_								
							1			
										·
		<del></del> -					11.81.22.2			
				J						
			* (GRO	SS Cts - Inst. Bk	$(g) \div (Eff.) = 0$	ACTIVITY				
RCT Printed N	RCT Printed Name Employee # RCT Signature Date									
RCT Technical	Supervisor Printed Name		Employee #		RCT Technical S	upervisor Signatu	re		Date	14 TOTAL

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# **ESFORMS-16.02-03**PAGE 11 of 15

Date	nature	RCT Technical Supervisor Sign	# 99	nue Embloy	RCT Technical Supervisor Printed M		
		:3: 3: 3: ( X. X. Z.	π		16 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -		
Date		RCT Signature	# ၁၁	. ЕшБјоу	RCT Printed Name		
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		Alle de constitue	A.C. Arrandala and a state of the state of t				
		***************************************					
		1-4					
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	001/mqb)	omments	_	Description	<b>У</b> итрет		
-	Scar	5440 tatalo		Location /	Sample		
	<u> </u>	ey Data	Scan Surv	<u>/                                    </u>			
		9,5 <u>U</u> 110	3 4003		<del></del>		
	ewu	Alpha Beta-Gan	Зигуеу Туре:		Cal. Due Date:		
			Probe No.:		Inst. No.:		
	Date / Time:						
Scan Instrument Data							
is assembled from 2 trailer units of approximately 14' X 70' feet in size.							
Street, directly east of Building 883, in April 1991. The size of this trailer is approximately 28' X 70' and it							
	Survey Unit Description: This office trailer was constructed/assembled at this site, Cedar Avenue and Eighth						
-	Building: T883C		Survey Unit: INTER		urvey Area: NOT AF		
	SOBEACE SCANNING DATA SHEET						

* If an elevated count rate or a sustained audible increase in the count rate is observed during the scan survey, OR the rate meter alarm sounds, THEM: Scan the immediate vicinity to determine the bounds of the elevated activity, and take a "Total Surface Activity" measurement and record. Mark the location of most elevated activity on the surface with a self-adhesive label or equivalent, ensuring that the marking is not applied directly over the point of interest. Further analysis is required by RS Supervision.

bBE

#### SURVEY PACKAGE CALCULATION WORKSHEET

Package	<b>ID:</b> 2000-01		Building: T883C					
Survey A	Area: Not Applicable	Mrs D. C.	Survey Unit: Interior					
Avenue a	Unit Description: This and Eighth Street, direct simately 28' X 70' and it ze.	tly east of Build	ling 883, in April 1991	l. The size	of this trailer			
X Total	Surface Activity		☐ Media Surface A	ctivity				
X Remo	ovable Surface Activity	7	□ Volumetric Surfa	ace Activi	ty			
Δ Δ w A	alculate the relative shift $\Delta/\sigma_s = (DCGL-LBGR)/\sigma_s$ $/\sigma_s = 1.0$ here: value of 1.0 was chosen single of 1.0 maximizes the num	ce no survey data		ary between	1.0 and 3.0. The			
th	etermine Sign p using the ca at a random measurement fr edian is actually at the LBG	om the survey uni	t will be less than the DCG					
T	etermine Decision Error Per ypical (α) and (β) values use alue of 1.645 and 1.645 respo	ed at RFETS are 0.						
Step 4: C	alculate Number of Data Po	ints (N) for Sign T	est using the following equ	ıation:				
1	$V = \frac{(Z_{1-\alpha} + Z_{1-\beta})^2}{4(Sign  p - 0.5)^2} =$	= 23.22						
	acrease the number of data possible data losses. 23.22*1.		sure sufficient power of the	e tests and to	allow for			
Conclusion	<b>1:</b> .							
A total of	28 data points will be needed	d to satisfy MARS	SIM statistical requirement	ts.				
				0.0				
RICK RO	DBERTS				173 Blac			
Project RE Pri	nted Name		oject RE Signature	<i>- 1</i> U	Date			
H.B. ES	TABROOKS		FASS a Southwest of		Marken -			

ESS RE Signature

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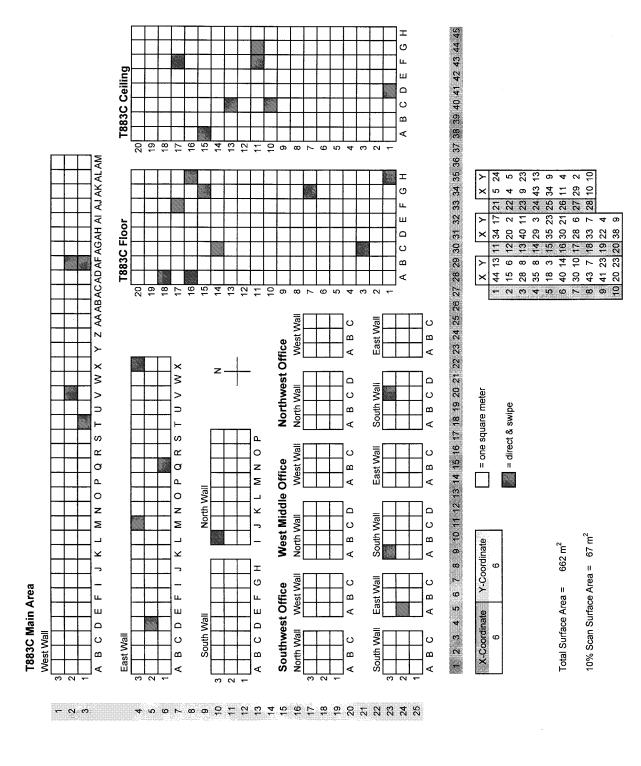
RESS RE Printed Name

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### SURVEY PACKAGE SURVEY MAP

Package ID: 2000-01	Building: T883C
Survey Area: Not Applicable	Survey Unit: Interior
Avenue and Eighth Street, directly east of E	was constructed/assembled at this site, Cedar Building 883, in April 1991. The size of this trailer ed from 2 trailer units of approximately 14' X 70'
Floor Area (m²): 160	Total Area (m²): 662
SEE ATTACHED SURVEY MAP	

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#### SURVEY PACKAGE VALIDATION CHECKLIST FORM

Package ID: 2000-01	Building: T883C						
Survey Area: Not Applicable	Survey Unit: Interior	Survey Unit: Interior					
Survey Type: Reconnaissance Level Characterization Survey □ Final Status Survey X							
All Documentation Reviewed for Completion	RCT Supervisor	PRE					
Scan Surveys	~~	Bou					
Total Activity Surveys	N	EDW					
Exposure Rate Surveys	NA	NA					
Removable Surveys	N	HOUS					
Media Samples	NA	NA					
Volumetric Samples	NA	NA					
All Surveys and Samples Accounted For	RCT Supervisor	PRE					
Scan Surveys	N	KAN					
Total Activity Surveys	7	KINY					
Exposure Rate Surveys	NA	NA					
Removable Surveys	p.l	ery					
Media Samples	NA-	NA-					
Volumetric Samples	NA	NA					
Comments:							
Ray Woman		4.0.00					
RICK ROBERTS	Supervisor Signature	Date					
ECIC D. MCKAMEY Project RE Printed Name	t RE Signature	6-12-00 Date					
H. B., ESTADROOKS	8020-111-						
RESS Manager Printed Name	Manager Signature	8-3-00 Date					
Control of the Contro		/ 1200					

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Survey Area:

N/A

**Survey Unit:** 

Interior

**Building:** 

T883C

**Survey Unit Description:** 

Floors, walls, and ceilings of Trailer T883C

#### 8. POST-PERFORMANCE ACTIVITIES

#### 8.1 Documentation

Reviewed the above mentioned Survey Package and associated measurement data in accordance with PRO-478RSP-16.04, Radiological Survey/Sample Data Analysis. The following items are noted:

- 1. Various notes are provided on the Survey Package DQA Checklist. See DQA Checklist.
- 2. Various notes are provided within the Survey Package. See Survey Package.
- 3. DQA Checklist should have location to input Survey Area, Survey Unit, Building and Survey Unit Description to ensure improved tracking.
- 4. Section 7.2.2 Accuracy, of RSP-16.04 should be rewritten to provide usable accuracy analysis process. Interoffice Memorandum REVISION TO PRO-478-RSP-16.04, RADIOLOGICAL SURVEY/SAMPLE DATA ANALYSIS EDM-001-00 was written and concurred on to provide a usable accuracy analysis process.
- 5. Spreadsheets provided to perform statistical calculations.
- 6. Several forms have been generated to replace forms from RSP-16.02. RSP-16.02 should be revised to reflect this change/improvement.
- 7. Total number of data points is very conservative. Using MARSSIM guidance it can be shown that significantly less data points are statistically acceptable. See spreadsheets.
- 8. Survey maps need improvement. Methodology employed is one that was used prior to RSP-16.01 approval. Recommend scale maps with grid overlays or CAD drawing in the future. See B779 Closure Project maps as examples.
- 9. TSA background measurements for NE Electras 2385 and 2379 were counted for 60 seconds versus 90 seconds (alpha and beta). For NE Electra 2385, the calculated MDA is 72 dpm/100 cm². This exceeds the MDA goal of 50 dpm/100 cm² but falls within the investigation level of 75 dpm/100 cm².
- 10. See data sheets for corrected data.

Prepared by : 5, 01, 77 / 3-2-00

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#### APPENDIX A

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## **DQA** Checklist

§	Item	Performed By (Initials/Date)	Comments (number & attach)
7.1	Data Verification	EM 3-2-00	
7.1[1]	DQOs implemented as prescribed	Equi / 3-2-50	
7.1[2]	All required supporting documents present	Emi/3-2-00	
7.1[3]	Outliers / anomalies addressed	10mm/3-2-00	
7.2	Data Validation	Ram / 3-2-00	
7.2.1	Survey/Sample Precision	Emu /3-2-00	see spreatsheets
7.2.2	Survey Accuracy	19mm/3-2-00	no sample taken
	Sample Accuracy	NA	no samples taken
7.2.3	Data Representative of survey unit	DM/3-2-00	
7.2.4	Survey/Sample/Scan Completeness	19m /3-2.00	100%
7.2.5	Data Comparable to related units	<del></del>	yes Group B
7.3	DQA complete	pm/3-2-00	yes Group B see Spreadsheets
7.3[3]	Any measurement > DCGL _w ?	N/A	NA
7.3[4]	Mean > DCGL _w	N/A	NA
7.3.[5]	Any measurement > maximum DCGL	NA	N/A
7.4	Evaluation	N/A	NA
7.4[1][D]	New survey package (if req'd)	14/A	N/A
7.4[1][E]	Radiological improvement report (if req'd)	N/A	N/A
7.4[2]	Verify documentation complete	NA	A/A
8.0	Peer review	do 6/13/00	f '
	Package submitted to project management	2301 BASK	
9.1	Records to Records Center	Em/8-73-00	
	(copy to project files) OTE: The DOA Flow Chart (Appendix B) is		1 204

NOTE: The DQA Flow Chart (Appendix B) is provided as aid to illustrate the DQA process when performing survey/sample data analysis activities describe in this procedure.



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## Removable Activity

		Ċ
•	(dpm/100 cm²) Alpha	( )

Survey Area - N/A	Survey Unit - Interior	Building - T883C	Survey Unit Description - Floors, walls and ceilin
-0.3	-0.3	-0.3	12

Survey Unit Description - Floors, walls and ceilings of Trailer T883C Removable Contamination Data Sheet DCGLw

 $0.8 \, \mathrm{dpm/100 \, cm^2}$  1.2  $\mathrm{dpm/100 \, cm^2}$ 20 dpm/100 cm² 28 Std Dev Mean 

No measurement exceeds the DCGL_w

### (dpm/100 cm²) Beta Removable Activity

Survey Area -	Survey (Init -
8. 4.	Œ
σ	Ψ-

Survey Unit Description - Floors, walls and ceilings of Trailer T883C Removable Contamination Data Sheet Survey Unit - Interior Building - T883C 

 $11.2 \text{ dpm/100 cm}^2$  15.9 dpm/100 cm² 1000 dpm/100 cm² DCGL_W Std Dev Mean

No measurement exceeds the DCGL_W

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# Total Surface Activity (dpm/100 cm²) Alpha

5.8	Survey Area - N/A	a - N/A				
6.8 <u>-</u>	Survey Unit - Interior	t - Interior				
2.7	Building - T883C	7883C				
8.9	Survey Unit	t Descripti	ion - Floor	s, walls an	d ceilings of	Survey Unit Description - Floors, walls and ceilings of Trailer T88BC
-5.8	Total Surface Activity Data Sheet	ce Activity	/ Data She	et		
0.0	DCGLW	100	100 dpm/100 cm ²	:m²		
-3.1	<b>c</b>	28				
6.8	Mean	4.8	4.8 dpm/100 cm ²	;m²		
-3.1	Std Dev	9.4	9.4 dpm/100 cm ²	;m²		
17.9						
15.2	No measurement exceeds the DCGL _w	ement exc	eeds the [	CGLW		
3.1	No measurement exceeds 75% of the the	ement exc	eeds 75%	of the the	DCGLW	
-12.1						
8.9	Precision					
-3.1						
5.8	Location	ပ်	ပ်	ပံုင်	$(C_{1+}C_2)/2$	RPD
-14.8	G-15F	-3.1	-3.1	0	-3.1	0
12.1	G-7F	0.0	12.1	-12.1	6.05	-200
3.1	C-3F	2.7	3.1	-0.4	2.9	-13.7931
17.9	A-3S	6.3	5.8	0.5	6.05	8.264463
14.8	I-3N	9.7	0.0	7.6	3.8	200
15.2						
-5.8	Precision (R	(PD) is out	of specifica	ation due to	low value su	Precision (RPD) is out of specification due to low value survey measuremer
21.0	measurements	nts				
7.6						
3.1	Recalculated N	N P				
6.3						
11.6	$\Delta/\sigma_{\rm s} = ({\rm DCGL\text{-}LBGR})/\sigma_{\rm s}$	SL-LBGR)/e	s			

## Recalculated N

$\Delta/\sigma_{\rm s} = ({\rm DCGL\text{-}LBGR})/\sigma_{\rm s}$	$\Delta/\sigma_{\rm s} = (100-50)/9.4$	$\Delta/\sigma_{\rm s} = 5.32$ (default to 3)	Sign $p = 0.998650$	N = 10.88	10.88*1.2 = 13.05

N = 14

# Total Surface Activity (dpm/100 cm²) Beta -132

ea - N/A	Survey Unit - Interior	T883C	Survey Unit Description - Floors, walls and ceilings of Trailer T883C	Total Surface Activity Data Sheet	5000 dpm/100 cm ²	28	-4.5 dpm/100 cm ²	229.9 dpm/100 cm ²		No measurement exceeds the $DCGL_W$	No measurement exceeds 75% of the the $DCGL_W$			
Survey Area - N/A	Survey Un	Building - T883C	Survey Un	Total Surf	DCGLw	c	Mean	Std Dev		No measu	No measu		Precision	
-132	109	66-	-142	23	86	-49	-53	-33	382	161	422	158	165	270

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7/0						
264	Location	ပ်	ပ	ပ်-ပ	(C ₁₊ C ₂ )/2	RPD
-132	G-15F	-49	99	-115	8.5	-1352.941
-287	G-7F	98	95	φ	89	89 -6.741573
-375	C-3F	66-	69	-168	-15	1120
-448	A-3S	184	142	42	163	25.76687
-313	NE-I	-211	56	-267	-77.5	344.5161
-138						
-336	Precision (R	PD) is out c	of specifica	ation due to	Precision (RPD) is out of specification due to low value survey	ırvey
92	measurements	nts				
-211						
198	Recalculated N	N D				
184						
109	$\Delta/\sigma_{\rm s} = ({\rm DCGL\text{-}LBGR})/\sigma_{\rm s}$	الـ-LBGR)/م	10			

## Recalculated N

$\Delta/\sigma_{\rm s} = ({\rm DCGL\text{-}LBGR})/\sigma_{\rm s}$	$\Delta/\sigma_{\rm s} = (5000-2500)/229.9$	$\Delta/\sigma_{\rm s} = 10.87$ (default to 3)	Sign $p = 0.998650$	N = 10.88	10.88*1.2 = 13.05	N = 14

Survey Area: N/A Survey Unit: DITECTOR Building: T8830

Survey Unit Description

FLOOR, WALLS CELLING

#### **SURVEY SIGNATURE SHEET**

#### Removable /Total Surface Activity Performed By

P. CHITTUM		P. chillen	2-16-00
RCT Printed Name		RCT Signature	Date
B. KELLY		sally	2-16-00
RCT Printed Name		'RCT Signature	Date
M. LAWSON		A VIII	2-16.00
RCT Printed Name		RCT Signature	Date
A. PARKER		affehr	2-16-00
RCT Printed Name		( ) RCT Signature	Date
		·	and the second s
RCT Printed Name		RCT Signature	Date
		and North American State	
RCT Printed Name	Employee #	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date
and the same of th			

#### **Quality Control Measurements Performed By**

A. PARKER	-	What	2-16-00
RCT Printed Name		/ \KCT Signature	Date
÷			and the second s
RCT Printed Name	Employee #	RCT Signature	Date
		and the second s	
RCT Printed Name	Employee #	RCT Signature	Date
	A STATE OF THE STA		
RCT Printed Name	Employee #	RCT Signature	Date
· · · · · · · · · · · · · · · · · · ·			
RCT Printed Name	Employee #	RCT Signature	Date

Survey Reviewed By

Ran Wor-Ger		13/2-00
RCT Foreman Printed Name	RCT Foreman Signature	Date

Survey Area: N/A Survey Unit: Interior Building: 1883 C
Survey Unit Description
IMPERIOR FLOOR, WALL CEILING

#### **INSTRUMENT DATA SHEET**

#### **Removable Contamination Survey Instrument Data**

Manufacturer	Ebertine	Eberline	Eberline	Eberline		
Model	SAC4	SAC4	BC4	BC4		
Inst. ID#	1	2	3	4	5	6/
Serial #	1170	1171	928	868		
Cal. Due Date	6.30.00	7.11.00	3.27.00	7.12.00	N	
Analysis Date	2.16.00	2.16.00	2.16.00	2.16.00		A
Instrument Bkg (pm) 10-min count time	0.1	0.1	39.4	35.1		
Instrument Eff (%)	33	33	25	25		
Instrument MDA 2-min count time  ###################################	7.0	7.0	69.4	65.8		

#### **Total Surface Activity Instrument Data**

	ufactur	er	N.E.	Tech.	N.E.	Tech.	N.E.	Tech.						
	Model		Ele	ctra	Ele	ectra	Ele	ctra						
Ì	Inst. ID#			7		8		9	1	0	1	1	/ 12	
	Serial # / P	robe #	2378	1956	2385	1931	2379	1924						
	Cal. Due D			3-00		4.00	8.9	.00			N			
	Survey Dat	е	2-16	2-00	2.1	6.00	2.16	.00				A		
Day)	Alpha Bkg 90-sec count time	Beta Bkg 90-sec count time	1.3	365	<del>*</del> 7.0	* 576	* J.O	* 532						
	Alpha Eff (%)	Beta Eff (%)	22.35	30.36	21.49	29.94	21.54	30.65						
	Alpha MDA 90-sec Apm count time	Beta MDA 90-sec dpm count time		245	72	382	35	35%						

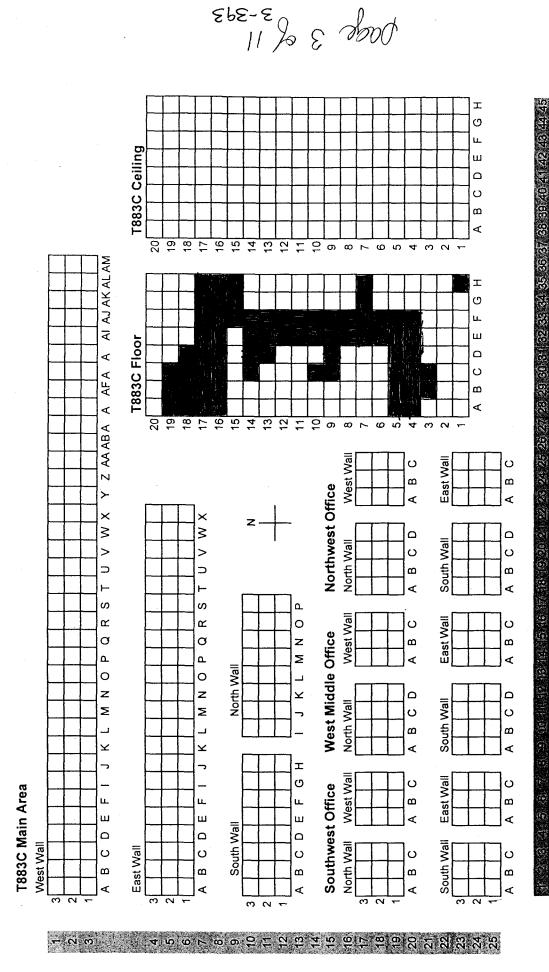
* 60 Sec. COUNT Time

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Package ID: 2000-01 Building: T883C Survey Unit: Interior

Scan Locations



#### Final Survey NE Electra Scan & Investigation Survey Map

Survey Area:	Survey Unit:	Building: てきす。
Survey Unit Description:	INTERIOR FLOR	1000
RCT Initials/Date: Jul 2/14/	RCT Initials/Date:	RCT Initials/Date:
		nentation, surveyor & approval information.
Legend: "R"-Roof, "V	V" – West Wall, "S" – South Wall, "	E" – East Wall, "N" – North Wâll
2.7	5,404	
0		N
N/A		NA

* Designates corner closest to A-1 point of reference Results/Comments:

Electra alpha scans were performed at the locations detailed on the survey map(s). All required accessible areas were scanned. All initial scan results were <225 dpm/100cm², unless noted on the survey form.

Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the survey form.

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#### Final Survey NE Electra Scan & Investigation Survey Form

Survey	Area:		· · · · · · · · · · · · · · · · · · ·	Survey U		<u>.</u>		Building:	
Survey	Unit Des	crintion			INTE	RIOR		1883	3 C
Barrey	Onn Des		アル	TERIOR	E1	ooR	*		
T		Ele	ectra DP-6 B	TERIOR eta	T -	DP-6 Alpha			
Loc. ID#	RCT	Inst.	Elevated	60-sec PAT	RCT	Inst.	4-sec Audible	. –	90-sec PAT
130 "	ID#	ID#	Audible observed?	(dpm/100cm2)	ID#	ID#	observed? "Y" or "N"	(gcpm)	(dpm/100cm ² )
			"Y" or "N"				Y OF IN		
FLO								A GENTLE A	
A-16F		8	~			8	N		
A-17[									
A-18F									
A-19 F									
B-16 F									
B-17E									
B-18F									
B-19 F									
C-16 F	-								
C-17F	-					<u></u>			<u> </u>
C-18F				MA				A/	
C-19F	_					_		/ /	4
p-16F	-	1							
D-17F	-					<b>V</b>		<del>                                     </del>	
p-18F			170			8			
E-15 F						9	·		
E-16F	-								
E-12F	-	+	Co.						
F-15F		+	Y Sough Control						
F-16F									
F-17F			And the second s						
3-15F				-					
G-16F								/	
5-175		V	_ \			<b>V</b>		1/	
H-15 F		8	//			9	N		

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## Final Survey NE Electra Scan & Investigation Survey Form (Continuation Sheet)

Survey				Survey U	Jnit:			Building:				
Survey	Unit Des	VA			INT.	ERIOR	2	1883				
Burrey	Omit Des	cription	In	TERIOR Beta	F	100	R					
Loc.		$E_{i}$	lectra DP-6 B	Beta		Electra DP-6 Alpha						
ID#	RCT ID#	Inst. ID#	Elevated Audible observed? "Y" or "N"	60-sec PAT (dpm/100cm2)	RCT ID#	Inst. ID#		30-sec Static (gcpm)	90-sec PAT (dpm/100cm²)			
H-16 F		8	N		4.	9	N					
1+-17F												
E-14E					_							
F-14 F		_ ·			_							
E-13F		-										
F-13 F												
E-12F					_							
F-12F								<				
E-11F						11		/	/A			
F-11 F									(			
E-10.F												
F-10 F				MA								
E-9F												
F-9 F		-										
09 F												
c-9. F			· .									
C-10 F												
F-8F												
E-8 F						-	-					
F-7 F					-		N					
E-7 F							Y	18.0	NA			
3-7 F							N					
H-7 F												
F-6 F						Wash the		N				
F-5 F		<b>1</b>	<b>V</b>			1	1	//	4			
E-5 F		8	N			9	N					

405

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### Final Survey NE Electra Scan & Investigation Survey Form (Continuation Sheet)

Survey				Survey Ur	nit:		T	Building:					
Survey	Unit Des	cription:	<u> </u>		I,	TERI	OR	Building: 1883	<u>C</u>				
			NTER	IOR F.	1001	₹							
Loc.													
·ID#	RCT ID#	Inst. ID#	Elevated Audible observed? "Y" or "N"	60-sec PAT (dpm/100cm2)	RCT ID#	Inst. ID#	4-sec Audible observed? "Y" or "N"	30-sec Static (gcpm)	-90-sec PAT (dpm/100cm ² )				
D-5F		8	N			9	$\sim$						
c-54													
8-55													
4-5 F													
F-45						_							
E-4 F						-							
D-4 F								1	/				
C-4 F				NA				·	A				
B-4 F		7		//									
A-4 F		,						-					
c-3,E						-		-					
B-3 F				\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \				<del>                                     </del>					
17 5				1				<del>                                     </del>					
D-19 F D-13 F									· .				
C-14 F		8	. //	/		9	N						
					N	and the second s							
					A		·						
- arrange (to be deleted to the	1												

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### Final Survey NE Electra Scan & Investigation Survey Form

	Survey	Area:	1		Survey I Ir	nit.		T	Ruilding:	
		N	/A		Survey Ur	"INT	ERIOR		Building: 1883	C
	Survey	Unit Des	cription:	TATEDIAD	Tipon 1.10		من دخو	<i>(</i>	1)	
			Ele	ectra DP-6 Be	FWOR, WA	The C	LILII!	Electra D	P-6 Alpha	
- :	ID#	RCT ID#	Inst. ID#	Elevated Audible observed? "Y" or "N"	60-sec PAT (dpm/100cm2)	RCT ID#	Inst. ID#	4-sec Audible observed? "Y" or "N"	30-sec Static (gcpm)	90-sec PAT (dpm/100cm ² )
QC CHECKS	6.15.F		7	N	N/A		7	N	N/A	N/A
\	G.7.F		7	N	N/A		7	N	N/A	N/A
1 1	C.3.F		7	$\mathcal{N}$	N/A		7	$\mathcal{N}$	NIA	N/A
	A.3.S		7	$\mathcal{N}$	N/A		7	$\mathcal{N}$	NA	N/A
1	I.3.N		7	N	N/A		7	N	NA	NA
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		_								
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		_				$\sim$				

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Survey Area: NA Survey Unit: Interior Building: T883C

Survey Unit Description

Interior Floor, Ways, Ceiling

ample cation	RCT ID#	,	t ID #		s Counts gcpm)		Counts pm)		movable Activity (dpm/100cm2)	
		α	β	α	β	α	β	α	β	
00			_							
3. <u>F</u>		1	3		465	!	17.1	3	28.4	
1.5		2	4	0	40.5	!	5.4	-3	21.6	
7.F		1	3	0	43		3.6	- 3	14.4	
17.E		7	3	.5	41	0.4	1.6	1.2	6.4	
16.F		2	4	6	32.5	<u> </u>	-2.6	3	-10.4	
Hb.F			3	.5	40	0.4	0.6	1.2	2.4	
15.F		7	4	0	405	!	5.4	3	21.6	
4.F		1	3	.5	39	0.4	-0.4	1.2	-1.6	
4.F 4.K		2	4	0	39,5	1	4.4	<del>  ~.3</del>	17.6	
5.C		1	3	6	40.5	1	1.1	3	4.4	
7.C		2	4	15	39	0.4	3.9	1.2	15.6	
3.C		1	3	0	47	1	7.6	3	30.4	
11.C		7	4	5	32.5	0.4	-2.6	1.2	-10.4	
0.0		Ī	3	0	42.5	-,1	3.1	~.3	12.4	
11.C		2	4	.5	36	0.4	0.9	1.2	3.6	
1.C		Ī	3	1.0	45	0.9	5.6	2.7	22.4	
INA		NE	<del></del>	VALL						
2.W		1		.5	41.5	0.4	2.1	1.2	8.4	
1. W		2	3	15	42.5	0.4	7.4	1.7	29.6	
Z.W		1	3	0	42.5	1	3.1	3	12.4	
I.W		2	4	. 0	39	(	3.9	3	15.6	
IN A		AST	WA							
· E		2	4	.5	45.5	0.4	10.4	1.2	41.6	
2.E		1	3	1,5	36	1.4	-3.4	4.2	-13.6	
3.E		1	3	.5	33	0.4	-6.4	1.7	-25.6	
3. E		1	3	1.0	42	6.9	2.6	2.7	10.4	
INA		JOR	THV	Uni						
N			3	1.0	39	0.9	4	2.7	-1.6	
uIt		Ot	FICE							
2.E		2			45.5	0.4	10.4	1.2	41.6	
est			04	ice	<u> </u>					
3.\$		12	4	.5	39	0.4	3.9	1.2	15.6	
2.E 55.5 0.25		T	04	ce			` .			
3.5		2	4	0	35.5	1	0.4	3	1.6	

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Survey Area: N/A Survey Unit: Interior

Survey Unit Description

INTERIOR FLOOR, WALL, CEIUNG Building: 1883 (

			T	otal \$	Surfa	ace A	Activ	ity D	ata	Shee	t		
Sample location	RCT ID#	Inst	ID#	Survey co			AB pm)		Count		ounts om)	1	Activity 100cm2)
		α	β	α	β	α	β	α	β	α	β	α	β
ENTI		2002		90	90								
A-16F		7	7	90	90	2.7	377	4.0	337	1.3	-40	5.8	-132
A-18F		7	7	90	90	3.3	365	1.3	398	-2.0	33	-8.9	109
C-3F		7	7	90	90	0.7	377	1.3	347	0.6	-30	2.7	-99
C-14F		7	7	90	90	1.3	357	3.3	314	2.0	-43	8.9	-142
F-17F		7	7	90	90	3.3	366	2.0	373	-1.3	7	-5-8	23
G-7F		7	7	90	90	2.0	375	2.0	401	0.0	26	0.0	86
G-15F		7	7	90	90	2.0	344	1.3	329	16.7	-15	-3.1	-49
H-IF		7	7	90	90	1.3	385	3.3	369	20	-16	8.9	-53
H-16F		7	7	90	90	2.0	371	1.3	361	-0.7	-10	- 3.1	-33
ENTI		ELLING	S	90	90								
A-15C		7	7	90	90	2.0	357	6.0	473	4.0	116	17.9	382
C-10C		7	7	90	90	1.3	398	4.7	447	3.4	49	15.2	161
C-13C		7	7	90	90	1.3	353	2.0	481	0.7-	128	3.1	422
D-1C		7	7	90	90	2.7	371	0.0	419	-2.7	48	-12-1	158
F-11C		7	7	90	90	1.3	394	3.3	444	2.0	50	8.9	165
F-17C		7	7	90	90	2.0	329	1.3	411	-0.7	82	-3.1	270
G-11 C		7	7	90	90	2.0	385	3.3	465	1.3	80	5.8	264
MAIN		US		90	90								
T-IN		7	7	90	90	3.3	333	0.0	293	-3.3	-40	-/4.8	-132
V-ZW		7	7	90	90	1.3	337	4.0	250	2.7	-87	12.1	-287
AF-IW		7	7	90	90	2.0	385	2.7	271	0.7	-114	3.1	-375
AF-2W		7	7	90	90	2.0	385	6.0	249	4.0	-/36	17.9	-448
D-2E		7	7	90	90	0.7	394	4.0	299	3.3	-95	14.8	-313
M-3E		7	7	90	90	1.3	353	4.7	311	3.4	-4Z	15.2	-138
0-1E		7	7	90	90	2.0	398	0.7	296	-1.3	-102	-5.8	-336
X-3E		7	7	90	90	0.0	283	4.7	311	4.7	28	21.0	92
I.3N		7	7	90	90	1.3	359	3.0	295	1,7	-64	7.6	1-911
5.15FQC		7	7	90	90	0.7	361	0.0	341	-0.7	-20	-3.1	65.9
6-77ac		7	7	90	90	0.0	355	2.7	383	2.7	28	12.1	92.310
C:3FQC		7	7	90	90	1.3	378	2.0	357	0.7	-21	3.1	-69-20-
A.35 QC		7	7	90	90	2.0	282	3.3	239	1.3	-43	5.8	=141.631
1-3NQC		7	1	90	90	2.7	315	2.7	298	0	-17	0	-56.0°
Not			ments ar	e to be co	lected by					4		QC location	1 2010

number in the "Sample Location" column. Material background is assumed to be zero unless otherwise noted. "LAB" ~ local area background.

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Survey Area: NA Survey Unit: Inferior Building: 1883 C
Survey Unit Description

INTERIOR FLOOR, WALL, CEILING

			T	otal S	Surfa	ice A	ctivi	ity D	ata (	Shee	t		
Sample location	RCT ID#	Ins	ID#	Survey co			AB om)		Count pm)	Net counts (cpm)		Net Activity (dpm/100cm2)	
		α	β	α	β	α	β	α	β	α	β	α	β
S.W.		يق		90	90								
A-2E		7	7	90	90	1.3	333	2.0	273	0.7	-60	3.1	198
N.W.				90	90	(LOU	SER M	DDLE					
A-35		CE 7	7	90	90	1.3	329	2.7	273	1.4	-54	6.3	184
N.W.		351		90	90		PERN						
C-3S		7	7	90	90	7.7	300	5.3	267	2.6	-33	11.6	109
				90	90								
				90	90								
				90	90								
~				90	90								
		<del> </del>		90	90								
<u> </u>		-		90	90								
				90	90				-				
		<del> </del>		90	90						<b>1</b>		
		-	<del></del>	90	90								
		-		90	90		<u> </u>			<del></del>			
				90	90			<u> </u>					
	4	-		90	90		-		[				
			<del> </del>	90	90								
<i>-</i>		-		90	90			A					
···		ļ		90	90								
			<b> </b>	90	90	_/							
		ļ								-			
	ļ	<u> </u>		90	90								
				90	90			<u> </u>		<u> </u>	<u> </u>		
				90	90				<u> </u>	ļ			-
			ļ	90	90								
				90	90								
				90	90								
QC				90	90								
QC	/			90	90								
QC				90	90								
9e		1		90	90								
ZQC				90	90								

Note: QC measurements are to be collected by a different technician than the original survey. Mark the QC location number in the "Sample Location" column. Material background is assumed to be zero unless otherwise noted. "LAB" ~ local area background.

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#### SURVEY PACKAGE COVER SHEET

Package ID: 2000-01	Building: T883C	
Survey Area: Not Applicable	Survey Unit: Exterior	<u> </u>
Survey Unit Description: This office trailer of Avenue and Eighth Street, directly east of Bui approximately 28' X 70' and it is assembled from size.	lding 883, in April 1991. The s	ize of this trailer is
Building Information:	j :	
Survey Type: Reconnaissance Level Characterization	Survey  Final Status Survey X	
Building Type: Type 1 X Type 2  Type 3	•	
Classification: Class 1 🗖 Class 2 🗖 Class 3 X Ur	nknown 🏻	
Contaminants of Concern: Plutonium X Uranium X	Other 🗆	
<b>Justification for Classification:</b> This facility contamination.	has no known history of radiole	ogical
Special Support Requirements: Ladder, mainstrumentation may be required for surveying upper walls and ceilings on the interior and up	g in overhead areas. Overhead a	
<b>Special Safety Precautions:</b> Access to overheadts.	lead areas may require addition	al controls. Use
Isolation Controls:	<del></del>	
Level 1 🗖 Level 2 X N/A 🗖		
Labeling Requirements: The location where be marked using a sticker or a marker and the	•	-
Survey Package Implementation:		
	igwedge	
RICK ROBERTS	Mills and the second of the se	
Radiological Engineer Printed Name	al Engineer Signature	Date
NOT APPLICABLE		N/A
REFS Manager Printed Name	ager Signature	Date
H. B. ESTABROOKS		1/4//
RESS Manager Printed Name Survey Package Closure:	ager Signature	Date
Survey I ackage Closure.		
RICK ROBERTS EMATERS EQUID MANAGE		3,18/00
RESS Radiological Engineer Printed Name NOT APPLICABLE	ESS Radiological Engineer Signature	Date N/A
	<u> </u>	<del>                                     </del>
REFS Manager Printed Name	EFS Manager Signature	Date /2 /44
ナルングるカマナモン	Filmy of the	8/3/10
RESS Manager Printed Name	S Manager Signature	Date

08/3/00

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#### SURVEY PACKAGE TRACKING FORM

Package ID: 2000-01		Building: T883C						
Survey Area: Not Applica	ıble	Survey Unit: Exterior						
Initiator/ Date	Release Date	Validation Date	Closure Date					
MAN 1131100	1121/20	3409 Bys 30	Harry 3 /3/00					
	, , , , , , , , , , , , , , , , , , ,							

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#### SURVEY PACKAGE CORRECTION/CHANGE HISTORY FORM

Package ID: 2000-01		Building: T883C						
Survey Area:	Not Applicable	Survey Unit: Exterior						
Change #	Description	Initiator/ Date	PRE					
J	Fartoria sun surreya	r.	24219					
phen 2	Responds dated	218/10		1				
Z	Character Surveyor to 2		2.2. 2.14.00	<i>M</i> 2				
3	P. L. J. J. J. C.		2112 7 114 m					
7	Letter RSK-003-00 d	2 tel 3/9/00	2774 311.100					
	(See , 8 of 242)							
4	2 samples and 100 sample	required per	Emy 4/1/00	do				
	Characterization Package Su							
	Simpling and Analysis of &	1/ All 1						
5	from Groups B&C for Sorts		EDM 6/7/00	1-				
	Letter = 2014-003-00	•						
6	Corrected scan requireme	nt	EDM/6-20-00	2 km - 1				
	ļ		,					
		· · · · · · · · · · · · · · · · · · ·						
· · · · · · · · · · · · · · · · · · ·								

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#### INITIAL SURVEY PACKAGE DESIGN FORM

Package ID: 2000-01		Building: T883C		Type: 1			
Survey Area: No	t Applicable	Survey Unit: Ext	erior	Area (m ² ): 340			
and Eighth Stre	eet, directly east	of Building 883	nstructed/assem, in April 1991. 7 m 2 trailer units	The size of this t	railer is		
Survey Type:	W Blooks Taxas	The Victorian Co. Section 1.	Classification:				
RLC Survey □	FSS X		Class 1   Class	2 □ Class 3 X Un	known □		
Random/Uniform Surface Activity Measurements	Biased Surface Activity Measurements	Equipment Surface Activity Measurements	Media Samples	Volumetric Samples	Surface Activity Scans		
28	0	0	411000 2	0	Biased		
Building:		Type: Change	#4 20M 4/1/00	Survey Area:			
Survey Unit:			Area (m²):				
Survey Unit Desc	cription:						
Survey Type:			Classification:				
RLC Survey □					Jnknown □		
Random/Uniform Surface Activity	Biased Surface Activity	Equipment Surface Activity	Media Samples	Volumetric Samples	Surface Activity Scans		
Measurements	Measurements	Measurements					
Building:		Туре:		Survey Area:			
Survey Unit:		Museum	Area (m ² ):				
Survey Unit Desc	eription:						
Survey Type:		With piling	Classification:		**************************************		
RLC Survey □	FSS □		Class 1 □ Class 2 □ Class 3 □ Unknown □				
Random/Uniform Surface Activity Measurements	Biased Surface Activity Measurements	Equipment Surface Activity Measurements	Media Samples	Volumetric Samples	Surface Activity Scans		
Building:		Type:		Survey Area:			
Survey Unit:			Area (m²):				
Survey Unit Description:							
Survey Type:		THE CASE AND ADDRESS OF THE CA	Classification:	The state of the s			
RLC Survey □	FSS □		Class 1 □ Class	· · · · · · · · · · · · · · · · · · ·	J <b>nknown</b> □		
Random/Uniform Surface Activity Measurements	Biased Surface Activity Measurements	Equipment Surface Activity Measurements	Media Samples	Volumetric Samples	Surface Activity Scans		

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#### SURVEY PACKAGE SURVEY/SAMPLING INSTRUCTIONS FORM

Package ID: 2000-01	Building: T883C
Survey Area: Not Applicable	Survey Unit: Exterior

Survey Unit Description: This office trailer was constructed/assembled at this site, Cedar Avenue and Eighth Street, directly east of Building 883, in April 1991. The size of this trailer is approximately 28' X 70' and it is assembled from 2 trailer units of approximately 14' X 70' feet in size.

Minimum Survey/Sampling Measurement Requirements								
Measurement	Number and Type	Comments						
Surface Activity	EXTERIOR WALLS/ROOF:	SEE NOTE 1						
Measurements	28 surveys will be taken per the attached survey	SEE NOTE 2						
	тар.	SEE NOTE 3						
		SEE NOTE 4						
	QUALITY ASSURANCE SURVEYS	SEE NOTE 5						
		SEE NOTE 6						
	EXTERIOR WALLS/ROOF:							
	5 surveys will be taken per direction from radiological engineering.							
	1							
	Ì	}						
•								
	}							

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#### SURVEY PACKAGE SURVEY/SAMPLING INSTRUCTIONS FORM (cont)

Package ID: 2000-01	Building: T883C
Survey Area: Not Applicable	Survey Unit: Exterior

Survey Unit Description: This office trailer was constructed/assembled at this site, Cedar Avenue and Eighth Street, directly east of Building 883, in April 1991. The size of this trailer is approximately 28' X 70' and it is assembled from 2 trailer units of approximately 14' X 70' feet in size.

	Minimum Survey/Sampling Measurement Requirements								
Measurement	Number and Type	Comments							
Surface Scanning	EXTERIOR WALLS/ROOF:	SEE NOTE 1							
	Biased surface scans will be performed on the	SEE NOTE 2							
	exterior where contamination would accumulate. This includes seams, cracks and corners. Both	SEE NOTE 3							
	the exterior walls and roof will be scanned.	SEE NOTE 4							
, I the	less	SEE NOTE 5							
Change #6	No more than 10% of the total area will be scanned.	SEE NOTE 6							
	QUALITY ASSURANCE SCAN SURVEYS								
	EXTERIOR WALLS/ROOF:								
	5 percent of total number of scans or of total scan area will be taken per direction from radiological engineering.								
·	Bart all of								
Media Samples	NONE A								
·	Change #4 comm white								
Volumetric Samples	NONE								
·									
Isotopic Gamma Scans	NONE								

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#### SURVEY PACKAGE SURVEY/SAMPLING INSTRUCTIONS FORM (cont)

Package ID: 2000-01	Building: T883C
Survey Area: Not Applicable	Survey Unit: Exterior

Survey Unit Description: This office trailer was constructed/assembled at this site, Cedar Avenue and Eighth Street, directly east of Building 883, in April 1991. The size of this trailer is approximately 28' X 70' and it is assembled from 2 trailer units of approximately 14' X 70' feet in size.

#### Survey/Sampling Instructions

**NOTE 1:** Surveys of the area were established on a random basis and are delineated on page 14, RSFORMS-16.01-10, of the survey package. Survey points will be taken in the middle of the survey grid and will be cross-referenced to a common reference point in the trailer. These surveys will be taken in accordance with PRO-476-RSP-16.02, "Radiological Surveys of Surfaces and Structures", for the following:

- Total alpha contamination
- Total beta contamination
- Removable alpha contamination
- Removable beta contamination
- Biased scan measurements for alpha then beta/gamma contamination

For total alpha and total beta surveys, the LAB will be determined at each survey point by placing a piece of plywood over the probe face that is at least 0.5 inch thick and performing an alpha count and a beta count. The material background for both total alpha surveys and total beta surveys will be considered to be 0 dpm/100 cm².

Alpha scanning using the NE Electra for the DP6-BD and DP8A probes will be in accordance with Letter SJR-001-99, "Alpha Scan Rates for Building 779 Cluster Final Status Surveys," and Letter SJR-004-99, "Performance of Scan Surveys with the Bicron/NE DP8 Probe for Building 779 Cluster Final Status Surveys," respectively. Beta scanning using the NE Electra.

**NOTE 2:** Quality assurance prescribed surveys of the area will be taken in accordance with PRO-476-RSP-16.02, "Radiological Surveys of Surfaces and Structures" per the requirements in PRO-479-RSP-16.05, "Radiological Survey/Sample Quality Control," for the following:

- Direct alpha contamination
- Direct beta contamination
- Scan measurements for alpha then beta/gamma contamination

The location of quality assurance surveys will be delineated by radiological engineering after the initial surveys are performed. Quality assurance surveys will be performed by a different individual than performed the original survey.

**NOTE 3:** The RCT shall document the results for all surveys performed and maintain with the survey instructions package.

**NOTE 4:** All survey instruments will be performance checked both prior to and after performing surveys, and both performance checks will be documented. Contact Radiological Engineering for direction if an instrument fails the post performance check.

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#### SURVEY PACKAGE SURVEY/SAMPLING INSTRUCTIONS FORM (cont)

Package ID: 2000-01Building: T883CSurvey Area: Not ApplicableSurvey Unit: Exterior

**Survey Unit Description:** This office trailer was constructed/assembled at this site, Cedar Avenue and Eighth Street, directly east of Building 883, in April 1991. The size of this trailer is approximately 28' X 70' and it is assembled from 2 trailer units of approximately 14' X 70' feet in size.

#### Survey/Sampling Instructions

**NOTE 5:** The following MDA requirements are a goal for each survey instrument. The MDA shall not exceed the Investigation Levels outlined in NOTE 6.

- 10 dpm/100 cm² for removable alpha contamination
- 50 dpm/100 cm² for total alpha contamination
- 500 dpm/100 cm² for removable beta contamination
- 2500 dpm/100 cm² for total beta contamination
- 150 dpm/100 cm² for alpha scan
- 7500 dpm/100 cm² for beta scan

**NOTE 6:** If a survey result exceeds the following investigation levels, contact radiological engineering before proceeding:

- 15 dpm/100 cm² for removable alpha contamination
- 75 dpm/100 cm² for total alpha contamination
- 750 dpm/100 cm² for removable beta contamination
- 3750 dpm/100 cm² for total beta contamination
- 225 dpm/100 cm² for alpha scan
- 11250 dpm/100 cm² for beta scan

An investigation will be performed into the elevated results.

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	TOTAL SURFACE ACTIVITY SURVEY DATA FORM										
urvey A	rea: NOT AP			Survey Un			LI DIXII		ing: T8830	$\overline{C}$	
Street, d	nit Descriptio irectly east o ed from 2 tra	of Buildin	g 883, ir	n April 1	991. Th	ne size of t	his trailer i	site, Ced s approxi	ar Avenue mately 28	e and Eig 8' X 70' a	thth nd it is
				Total	Surface	Instrument					
inst. I α Inst. I	/ Time No.: α No.: β,γ										
β,γ Effici MDC	ency (%): α (dpm/100 cm ²	₅ ). α	βγ	(cr	 om/dpm)	Mat. Area	Bkgd: α		βγ	(dpm	/100 cm ² )
Probe	Correction Fa	ctor: $\alpha$		βγ	(1			Alpha	Beta	T	
				Т				T		**Net	Activity
Sample Number	Location / Description	Gross (cr	Counts m)	1	Bkgd om)		Counts pm)		Activity (00 cm ² )	Gross A Mat. Ar	Activity - ea Bkgd. 00 cm ² )
		α	β,γ	α	β,γ	α	β,γ	α	β,γ	α	β,γ
				-			17				
			······································								
				-							<u> </u>
			·	<del> </del>							1
				·							-
											-
											-
								1			1
		•				$Eff.) \times CF = Mat. Bkg = Note 1000$	Gross Activi	ty			
RCT Printed N	ame		Employee			RCT Signature			Date		
RCT Technical	Supervisor Printed Na	ame	Employee	e#		RCT Technica	l Supervisor Signatu	ire	Date		

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		REMOVABLE S	URFACE AC	TIVITY DA	ΓA SURVI	EY FORM	to the second se	
Survey A APPLIC	rea: NOT ABLE	Survey Unit: E	XTERIOR		Build	ing: T883C		
Survey U	nit Description: T	his office trailer	was construc	ted/assemb	led at this	site. Cedar	Avenue an	d Eighth
Street, d	irectly east of B	uilding 883, in A	pril 1991. T	he size of th	is trailer	is approxim	nately 28' X	70' and it is
		units of approxim				r appromi		, 0 3.1.1.1.1
	<del></del>		Smear Survey					
Inst. No	o.:		Probe	No.:				
Inst. Ef	ficiency (%): α	βγ						
MDC (	dpm/100 cm²):	α	<u>βγ</u> Inst. B	KG: α			(cpm)	
Cal. Du	e Date:			Type: Alp		Beta-Gamn	na	
				Survey Data	l			
Swipe Number	Location / Description	Comments	1	Counts om	i	Counts Cpm		e Activity * 100 cm ² )
			α	βγ	α	βγ	α	βγ
-			-					
				· · · · · · · · · · · · · · · · · · ·	<del>                                     </del>	<del> </del>	<del> </del>	
						<del>                                     </del>		
,			<del>                                     </del>		1			
			<del> </del>		<del> </del>	<del> </del>	<del> </del>	
	<u> </u>				<del> </del>	<del> </del>		
							-	
	<del></del>				<del> </del>	<del></del>		
	<del></del>	and the same and t				<del> </del>	<del> </del>	
<u> </u>	<u> </u>	<u> </u>			<del> </del>	<del> </del>	<del> </del>	
						+	<u> </u>	
		* (GROS	SS Cts - Inst. B	$(kg) \div (Eff.) =$	ACTIVIT	Y		
RCT Printed N	ame	Employee #		RCT Signature			Date	
POT Table	Supervisor Printed Name	Employee #		POT Testados	Supervisor Signa	hira	Date	
ACT TECHNICAL	Supervisor rimited ivaime	Емірюуее #		KC1 jechnicaj	oupervisor orgna	unc	Date	

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SURFACE SCANNING DATA SHEET								
urvey Area: NOT AF	PPLICABLE	Survey U	nit: EXTE	RIOR	Building: T883C			
Survey Unit Description Street, directly east of is assembled from 2	of Building 8	883, in <b>A</b> pril of approxim	1991. The ately 14' X	e size of this traile <a href="Total">Total</a> feet in size.	nis site, Cedar Aver er is approximately	nue and Eighth 28' X 70' and it		
		S	Scan Instru	ment Data				
Date / Time:								
mst. 110		Probe						
Cal. Due Date:		Survey	Type:	Alpha Beta-Ga	mma			
			Scan Surv	ey Data				
Sample	Locat	ion /		-	Sc	an		
Number	Descri	ption	. 0	comments	(dpm/1			
					α*	β,γ*		
	<del></del>							
					<u> </u>			
				the state of the s	117-11			
	• .							
	· · · · · · · · · · · · · · · · · · ·							
				- 6 to 6 to 6 to 3 to 3 to 3 to 4 to 5	- Charles			
				***************************************				
RCT Printed Name	T c	Employee #		RCT Signature		Date		
A A A A A A A A A A A A A A A A A A A	.   1	лирюуес п		ACT Signature		Dail		
RCT Technical Supervisor Printed N	ame F	Employee #		RCT Technical Supervisor Si	gnature	Date		
•		- "		,	~			

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^{*} If an elevated count rate or a sustained audible increase in the count rate is observed during the scan survey, OR the rate meter alarm sounds, THEN: Scan the immediate vicinity to determine the bounds of the elevated activity, and take a "Total Surface Activity" measurement and record. Mark the location of most elevated activity on the surface with a self-adhesive label or equivalent, ensuring that the marking is not applied directly over the point of interest. Further analysis is required by RS Supervision.

#### SURVEY PACKAGE CALCULATION WORKSHEET

Package ID: 2000-01	Building: T883C
Survey Area: Not Applicable	Survey Unit: Exterior
C	4 4 1/ 11 1 4 41 1 4 6 1

**Survey Unit Description:** This office trailer was constructed/assembled at this site, Cedar Avenue and Eighth Street, directly east of Building 883, in April 1991. The size of this trailer is approximately 28' X 70' and it is assembled from 2 trailer units of approximately 14' X 70' feet in size.

- X Total Surface Activity
- X Removable Surface Activity 

  Usual Volumetric Surface Activity

Step 1: Calculate the relative shift  $\Delta/\sigma_s$ .  $\Delta/\sigma_s = (DCGL-LBGR)/\sigma_s$  $\Delta/\sigma_s = 1.0$ 

where:

A value of 1.0 was chosen since no survey data is available and  $\Delta/\sigma_s$  may vary between 1.0 and 3.0. The use of 1.0 maximizes the number of surveys required.

- Step 2: Determine Sign p using the calculated relative shift and Table 7-1. Sign p is the estimated probability that a random measurement from the survey unit will be less than the DCGL_w when the survey unit median is actually at the LBGR. Sign p = 0.841345
- Step 3: Determine Decision Error Percentiles for  $Z_{1-\alpha}$  and  $Z_{1-\beta}$  and the selected decision error levels  $\alpha$  and  $\beta$ . Typical ( $\alpha$ ) and ( $\beta$ ) values used at RFETS are 0.05 and 0.05 respectively. This yields a  $Z_{1-\alpha}$  and  $Z_{1-\beta}$  value of 1.645 and 1.645 respectively.
- Step 4: Calculate Number of Data Points (N) for Sign Test using the following equation:

$$N = \frac{(Z_{1-\alpha} + Z_{1-\beta})^2}{4(Sign \, p - 0.5)^2} = 23.22$$

Step 5: Increase the number of data points by 20% to ensure sufficient power of the tests and to allow for possible data losses. 23.22*1.2 = 27.86

Conclusion:

A total of 28 data points will be needed to satisfy MARSSIM statistical requirements.

RICK ROBERTS		W		1/22/30
Project RE Printed Name	Project RE Signature	V		Date
H.B. ESTABROOKS			<del></del>	1/24/30
RESS RE Printed Name	RESS RE Signature			Date

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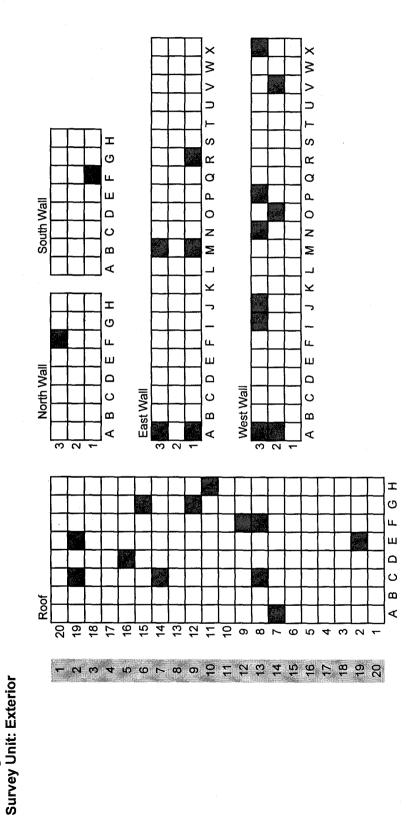
#### SURVEY PACKAGE SURVEY MAP

Package ID: 2000-01	Building: T883C
Survey Area: Not Applicable	Survey Unit: Exterior
<b>Survey Unit Description:</b> This office trailer was Avenue and Eighth Street, directly east of Build is approximately 28' X 70' and it is assembled freet in size.	ling 883, in April 1991. The size of this trailer from 2 trailer units of approximately 14' X 70'
Floor Area (m ² ): 160	Total Area (m ² ): 340
SEE ATTACHED SURVEY MAP	

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Package ID: 2000-01 Building: T883C





Joordinate Y-Coordinate	5 13		

= direct & swipe

Fotal Surface Area = 340 m²

10% Scan Surface Area = 34 m²

#### SURVEY PACKAGE VALIDATION CHECKLIST FORM

Package ID: 2000-01	Building: T883C	
Survey Area: Not Applicable	Survey Unit: Exterior	
Survey Type: Reconnaissance Level Characterization	on Survey  Final Status Survey	X
All Documentation Reviewed for Completion	RCT Supervisor	PRE
Scan Surveys	p.ml	EBU
Total Activity Surveys	1	EM
Exposure Rate Surveys	NA	NA
Removable Surveys	Pyrand 1	KBUJ
Media Samples	N	KAM
Volumetric Samples	NA	NA
All Surveys and Samples Accounted For	RCT Supervisor	PRE
Scan Surveys	1	EDM
Total Activity Surveys	g Therefore	Eng
Exposure Rate Surveys	NA	N/A-
Removable Surveys	p.	Kanj
Media Samples	A	kom
Volumetric Samples	NA	NA
Comments:		· ·
Ray Worker		16-13 W
RCT Supervisor Printed Name	CT Supervisor Signature	Date
ELIC D. MCKAME   Project RE Printed Name	roject RE Signature	6-13-00 Date
H.B. ESTABROOKS	Ojeti KE digname	
RESS Manager Printed Name	ESS Manager Signature	8-3-00 Date
The state of the s		

8/3/00

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Survey Area:

N/A

**Survey Unit:** 

Exterior

**Building:** 

T883C

**Survey Unit Description:** 

Roof and walls of Trailer T883C

#### 8. POST-PERFORMANCE ACTIVITIES

#### 8.1 Documentation

Reviewed the above mentioned Survey Package and associated measurement data in accordance with PRO-478RSP-16.04, Radiological Survey/Sample Data Analysis. The following items are noted:

- 1. Various notes are provided on the Survey Package DQA Checklist. See DQA Checklist.
- 2. Various notes are provided within the Survey Package. See Survey Package.
- 3. DQA Checklist should have location to input Survey Area, Survey Unit, Building and Survey Unit Description to ensure improved tracking.
- 4. Section 7.2.2 Accuracy, of RSP-16.04 should be rewritten to provide usable accuracy analysis process. Interoffice Memorandum REVISION TO PRO-478-RSP-16.04, RADIOLOGICAL SURVEY/SAMPLE DATA ANALYSIS EDM-001-00 was written and concurred on to provide a usable accuracy analysis process.
- 5. Section 7.3, Data Quality Assessment (DQA) does not have instruction to address the situation when survey unit activity measurements exceed the  $DCGL_W$  but the survey unit mean does not exceed the  $DCGL_W$ .
- 6. Spreadsheets provided to perform statistical calculations.
- 7. Several forms have been generated to replace forms from RSP-16.02. RSP-16.02 should be revised to reflect this change/improvement.
- 8. Survey maps need improvement. Methodology employed is one that was used prior to RSP-16.01 approval. Recommend scale maps with grid overlays or CAD drawing in the future. See B779 Closure Project maps as examples.
- 9. See data sheets for corrected data.

Prepared by: 5. \$13000 / 4-1-100

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(09/30/99)

#### APPENDIX A

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#### **DQA** Checklist

§	Item	Performed By (Initials/Date)	Comments (number & attach)
7.1	Data Verification	120my / 6/1/00	
7.1[1]	DQOs implemented as prescribed	100m / 6/1/00	
7.1[2]	All required supporting documents present	1004/6/1/00	
7.1[3]	Outliers / anomalies addressed	100m/ 6/1/00	
7.2	Data Validation	100m/6/1/00	
7.2.1	Survey/Sample Precision	100my 6/1/60	
7.2.2	Survey Accuracy	100mg / 6/1/00	See spread sheets
	Sample Accuracy	RM 6/1/00	
7.2.3	Data Representative of survey unit	DM/6/1/50	yes
7.2.4	Survey/Sample/Scan Completeness	10mg/6/1/80	
7.2.5	Data Comparable to related units	1004/6/1/00	yes, see sprend sheets
7.3	DQA complete	10 / 1/00	yes see spread sheets
7.3[3]	Any measurement > DCGL _w ?	100my   6/1/00	<i>'</i>
7.3[4]	Mean > DCGL _w	NA	
7.3.[5]	Any measurement > maximum DCGL	N4	
7.4	Evaluation	NA	
7.4[1][D]	New survey package (if req'd)	NA	
7.4[1][E]	Radiological improvement report (if req'd)	NA	
7.4[2]	Verify documentation complete	NA_	
8.0	Peer review	do 6/13/00	ມ່ວນ∈ .
	Package submitted to project management	Marie Haragaria	
9.1	Records to Records Center  (copy to project files)	EMM /8-77-00	

NOTE: The DQA Flow Chart (Appendix B) is provided as aid to illustrate the DQA process when performing survey/sample data analysis activities describe in this procedure.



# Removable Activity (dpm/100 cm²) Alpha

Survey Area - N/A	Survey Unit - Exterior	Building - T883C	Survey Unit Description - Roof and walls of Trailer T883C	Removable Contamination Data Sheet	DCGL _w 20 dpm/100 cm ²	n 28	Mean 1.1 dpm/100 cm²	Std Dev 2.2 dpm/100 cm ²		No measurement exceeds the DCGL _W		Three measurements missing	One measurement taken that was not on map												
1.2	-0.6 9.0-	1.2	9.0-	1.2	10.0	1.2	2.4	1.2	6.0	2.7	9.0-	1.8	9.0-	6.0-	2.1	9.0	9.0	9.0	6.0-	2.1	2.1	6.0-	6.0-	2.1	9.0

### (dpm/100 cm²) Beta Removable Activity

Survey Area - N/A	Survey Unit - Exterior	Building - T883C	Survey Unit Description - Roof and walls of Trailer T883C	Removable Contamination Data Sheet
11.2	0.4	-18.8	-19.6	8.8

1000 dpm/100 cm² 28 DCGL_W

-3.1 dpm/100 cm² 14.2 dpm/100 cm² Std Dev Mean

No measurement exceeds the DCGL_W

One measurement taken that was not on map Three measurements missing

25.6 5.2 2.4 15.2 -7.6 15.2 -7.6 -7.6 -9.6 -9.6 -9.6 -9.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -14.6 -1

Surface Activity	1/100 cm ² ) Alpha
Total	mdp)

Survey Area - N/A	Survey Unit - Exterior	Building - T883C	Survey Unit Description - Roof and walls of Trailer T883C	Total Surface Activity Data Sheet	DCGL _w 100 dpm/100 cm ²	n 28	Mean 36.0 dpm/100 cm ²	Std Dev 41.7 dpm/100 cm ²		Two measurements exceeds the DCGL _w	Five measurements exceeds 75% of the the DCGL _w		Precision	
•														
5.9	51.8	18.2	12.3	15.0	20.9	0.0	-9.1	-21.4	27.3	-30.0	-5.9	3.2	6.4	140.0

Location	ပ်	ပ်	$C_1$ - $C_2$	$(C_{1+}C_2)/2$
F-1S	-21.4	0.0	-21.4	-10.7
A-1E	27.3	18.6	8.7	22.95
R-1E	-5.9	15.3	-21.2	4.7
A-2W	18.2	12.6	5.6	15.4
0-2W	0.0	6.5	-6.5	3.25

200 37.9085 -451.0638 36.36364 -200

RPD

Precision (RPD) is out of specification due to low value survey measurements measurements

47.9 58.6 116.3 62.6 60.0 56.8 77.9 80.5 89.5 65.8 50.6 50.6

## Recalculated N

$\Delta/\sigma_{\rm s} = ({\rm DCGL\text{-}LBGR})/\sigma_{\rm s}$	$\Delta/\sigma_{\rm s} = (100-50)/41.7$	$\Delta/\sigma_{\rm s} = 1.20$	Sign $p = 0.884930$	N = 18.26	18.26*1.2 = 21.92	N = 22

## Total Surface Activity (dpm/100 cm²) Beta

72	Survey Area - N/A	:a - N/A			
101	Survey Unit - Exterior	it - Exterior			
36	Building - T883C	T883C			
13	Survey Uni	it Descripti	on - Roof	and walls	Survey Unit Description - Roof and walls of Trailer T883C
-62	Total Surface Activity Data Sheet	ice Activity	Data She	et	
-62	DCGLw	2000	5000 dpm/100 cm ²	:m²	
10	c	28			
49	Mean	94.3	94.3 dpm/100 cm ²	:m²	
121	Std Dev	212.2	212.2 dpm/100 cm ²	;m²	
33					
68	No measurement exceeds the DCGL _w	ement exc	eeds the [	CGLW	
147	No measurement exceeds 75% of the the	ement exc	eeds 75%	of the the	DCGL _w
65					
-290	Precision				
211		-			
191	Location	ပ်	ပ	ပ္ပံုင္	$(C_{1+}C_2)/2$ RPD
-642	F-1S	121	651	-530	386 -137.3057
132	A-1E	33	899	-635	350.5 -181.1698
72	R-1E	147	218	-431	362.5 -118.8966
362	A-2W	36	421	-385	228.5 -168.4902
122	O-2W	10	374	-364	192 -189.5833
346					
290	Precision (R	RPD) is out	of specifica	ation due to	Precision (RPD) is out of specification due to low value survey
514	measurements	ents			
343					
171	Recalculated N	N pa			
163					
65	$\Delta/\sigma_{\rm s} = ({\sf DCGL\text{-}LBGR})/\sigma_{\rm s}$	3L-LBGR)/c	s		
	$\Delta/\sigma_{\rm s} = (5000-2500)/212.2$	0-2500)/212	2.2		
	$\Delta/\sigma_{\rm s} = 11.78$ (default to 3)	3 (default to	3)		

Sign p = 0.998650 N = 10.88 10.88*1.2 = 13.05 N = 14 Survey Area: NA Survey Unit: EXTELION Building: 7883 C
Survey Unit Description Exterior WALLS

#### SURVEY SIGNATURE SHEET Removable /Total Surface Activity Performed By A.G. PARKER Jr 2 | 28 | 0 0 Date RCT Printed Name RCT Signature ME LAWSON RCT Signature 7-79-00 RCT Printed Name Date Chittum 7-29-00 RCT Printed Name RCT Signature Date **RCT Printed Name** Employee # RCT Signature Date **RCT Printed Name** Employee # RCT Signature Date RCT Printed Name Employee # RCT Signature Date **RCT Printed Name** Employee # **RCT Signature** Date

# **Quality Control Measurements Performed By**

RCT Printed Name		a Yarkin	2/28/00
TOT I TIME UNAME		RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date
	1		
RCT Printed Name	Employee #	RCT Signature	Date
	*		
RCT Printed Name	Employee #	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	

Survey Reviewed By

Las Warshe		3/2/ mg
RCT Foreman Printed Name	RCT Foreman Signature	Date

RO

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3-423

Survey Area: NA Survey Unit: EXTERIOR Building: T883 C
Survey Unit Description
EXTERIOR WALLS

### **INSTRUMENT DATA SHEET**

# **Removable Contamination Survey Instrument Data**

	<del></del>					
Manufacturer	Ebertine	Eberline	Eportine	Ebertine	EBERTINE	EBERLINE
Model	SAC4	BCA	SAC4	BCA	SACH	BCH
Inst. ID#	1	2	3	4	5	6
Serial #	1170	928	1171	868	1170	928
Cal. Due Date	6.30.00	3.21.00	7.11.00	71200	6-30-00	3.27-00
Analysis Date	2.28.00	2.28.00	2-28-00	2.28.00	2.79.00	2-29-08
Instrument Bkg opm 10-min count time	0.6	41.2	0.2	40.9	0.3	42.4
Instrument Eff (%)	33	25	33	25	33	25
Instrument MDA 2-min count time  Aym	10	70.9	7.56	70.6	8.3	3/1/00/ 71.8

#### **Total Surface Activity Instrument Data**

nufactur	er	N.E.	Tech.	N.E.	Tech.	N.E.	Tech.						/
Model		Ele	ctra	Ele	ectra	Ele	ectra						
Inst. ID#			7		8		9	1	0	1	1	12	2
Serial # / P	robe #	1370	1/58	2385	1931	1378	1956			. [			
Cal. Due D	ate	4.20	1.00	6.1	4.00	5-3	5-00		-	N	A		
Survey Dat	e	2.2	J. 10	2.2	8.00	2-20	1-00						
Alpha Bkg 90-sec cpm count time	Beta Bkg 90-sec com count time	6	309	7.3	329	4.0	363						
Alpha Eff (%)	Beta Eff (%)	220	30.66	21.19	29.94	U.35	30.36						
Alpha MDA 90-sec dpm count time	Beta MDA 90-sec Apm count time	50,5	223.7 250.6	56.2	236.2	42.1 42.1 31.16.2	244.4		-				

Page of 17



Survey Area: NA Survey Unit: Exterior Building: 7- 8x 3C

Survey Unit Description

Exterior WALS / 2008

Sample location	RCT ID#	Inst	ID#	Survey c			AB pm)	4	Count	Net co	ounts om)		ctivity 00cm2)
		α	β	α	β	α	β	α	β	α	β	α	β
3 NW		7	7	90	90	6.7	75.5"	ۍ ۶۰	317	1.3	22	5.4.	72-2/29/ 21-8 mic
3 WW		7	7	90	90	3, 3	244	16.7	315	11.4	31	51.8	101
ZWW		7	7	90	90	7.3	243	11.3	304	41.0	į t	18.2	36
-3 WW		7	7	90	90	6.0	309	8.7	313	2.7	4	12.3	13
ئىرىن ∑~		7	7	90	90	V . C	296	9,3	217	3.3	-14	15.3	-62
V-3 ww		7	7	90	90	67	294	3. از	277	4.6	-19	20.9	-62
7-2 nn		7	7	90	90	6.2	311	6.7	308	0.0	- 3	0.0	-47mc 10
7.3 ww		"7"	7	90	90	11.3	300	93	3.5	~Z.0	15	- 9.1	49
F-1 3W		7	7	90	90	iliu	218	1.3	335	1.7	3 7	- 21.4	121
A-1 EW		7	7	90	90	8.0	309	No. o	319	6.0	10	27.3	33
M-I EW		7	7	90	90	11,3	30 €	4. 7	323	-6.6	<b>ં</b> રા	-30.0	68
Z-1 EW		7	7	90	90	8,0	298	6-7	343	~i.3	45	~ S. 9	147
A-3 EW		7	7	.90	90	15.3	313	16.0	333	c. 7	10	3, 2	45
N-3 E~		7	7	90	90	7.3	406	27	3/7	1.4			-290
4-7R		9	9'.	90	90	7.0	356	33.3	420	31.3	64	1400	21/200
C-QR		9	9	90	90	3-3	321	14.0	379	10.7	58	47.9	191
C-14R		9	9	90	90	5.6	553	18.7	358	13.1	-195	58.6	-642
C-19R		9	9	90	90	3.3	356	29.3	396	26.0	40	116.3	132
D-16R		9	9	90	90	7:3	369	21.3	371	14.0	22	62.6	72
E-2R		9	9	90	90	5.3	330	18.7	440	13.4	110	6.0J	362
E-19R		9	9	90	90	4.0	382	16.7	419	12.7	37	56.8	122
F-8R		9	9	90	90	1.3	331	18.7	436	17.4	105	77.9	346
=-9R		9	9	90	90	4.0	315	27.0	403	18.0	33	30.5	290
G-12R		9	9	90	90	2.7	763	22.7	419	50.0	156	<i>2</i> 9.5	514
G-158		9	9	90	90	6.0	335	20.7	439	14.7	104	(42 G	343
H-11R		٩	9	90	90	2.7	339	14.0	391	(1.3	52	50.6	171
		Λ.	7	90	90					Λ	The second secon	The state of the s	7
~		) A -		90	90	1	-		10	7			120
1.5 QC		8	8	90	90	60	501	6.0	306	0	-195	Ostados	-78616
<u>1.E</u> QC		1		90	90	4.6	543	8.0	343	4	-200	812-1-181	48.4
1.EQC				90	90	8.0	488	4.7	315	-3.3	-173	65-10-153	4403
· <u>Z.W</u> QC		1	1	90	90	10.0	455	7.3	329	-2.7	-124	N-8.212	732.8
S-MOC		8	8	90	90	8.7	475	1.3	313	-1417	1-112	2/3/2/05	-16.8

Note the heasurements are to be collected by a different technician than the original survey. Mark the QC location number in the "Sample Location" column. Material background is assumed to be zero unless otherwise noted. "LAB" ~ local area background.

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Survey Area:	NA	Survey Unit:	Einenna	Building:	7-883C
Survey Unit De	scription	on	St 1 (1) to 10		1-015
	•	FATERIOR WAL	LS 1800F		

Sample location	RCT ID#	Inst	t ID#		ount time ec)		.AB :pm)		Count		counts pm)	Net A	Activity 100cm2)
		α	β	α	β	α	β	α	β	α	β	α	β
1-220		7	۲.	90	90	4.0	293	7.3	343	1.3	50	5, 9	103
1-3 ww		٦-	7	90	90	4.7	300	47	3 20	٥.٥	20	0.0	45
				90	90		1,55		3 23				4.2
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QC	$\neg \land$			90	90								
QC	$\overline{}$			90	90								
_9€			777164	90	90								
QC				90	90								

Survey Area: NA Survey Unit: EXTERIOR Building: T883 C
Survey Unit Description EXTERIOR WALLS

Sample Location	RCT ID#	Inst #			Counts pm)	Net C (cp	ounts om)	Removable Activity (dpm/100cm2)		
		<u>α</u>	β	α	β	α .	β	α	β	
P-3-W		1	2	1.0	44	.4.	2.8	1.2	11.2	
0-Z-W		31	4	0.0	41	2	. [	-0.6	0.4	
N.3-W		1	2	1.0	36.5	,4	-4.7	1.2	- 18.8	
V-3-W		3	4	0.0	36	2	-4.9	-0.6	-19.6	
1-3.W		T	4 2	1.0	39	.4	-2.2	1.2	-8.8	
X-2-W		3	4	3.5	34.5	3.3	-6.4	0.91 10.0	-25.(	
F-1-5			2	1.0	42.5	.4	1.3	1.2	5.2	
A-1-E		2	4	1.0	41.5	.45	0.6	212 2.4	2.4	
M-1.E		3	4-2	1.0	45	.4	3.8	1.2	15.2	
M.3.E		3	4	0.5	39	.3	-1.9	0.9	-7.6	
R-I.E		1	2	1,5	45	0.9	3.8	2.7	15.2	
A.3.W		3	4	0.0	39	-0.2	-1.9	-0.6	-7.6	
A.2.W		1	1	0.6	41.5	34×3000	,3	-0-613	1.2	
F.3.N		3	4	0.0	43.5	-0.2	2.6	-0.6	10.4	
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Survey Area: NA Survey Unit: Extende Building: 7-8836

Survey Unit Description

Extende Real

Sample -ocation	RCT ID#		#	Gross (gc			Counts cpm)		ble Activity /100cm2)
		α	β	α	β	α	β	α	β
1-7R		5_	6	0.0	41.5	-0.3	-0.9	- 0.9	- 3.6
-3R		nonnonnonnon	حا	1.0	40	0.7	-2.4	2.1	- 9.6
7-14R		5	0	0.5	39	0.2	-3.4	0.6	- 13.6
-17R		2	( _G	0.5	40	0.2	-2.4	0.6	- 9.6
5-16R		>_	l.	0.5	50-5	0.2	3.1	<u>ુ.</u> હ	32.4
<u> 2</u> 2		<u>Ş</u> _	ادا	0.0	39	-0.3	-3.4	- 0.9	- 13.6
c-19e		<u> </u>	6	1.0	37	0.7	-54	2.1	- 21.6
=-8R		$\geq$	ا ما	1.0	44	3.7	1.6	2.1	23406+ 6.
-9R		<u> </u>	اما	0.0	39.5	<u>-0.3</u>	-2.9	- 09	- 11.76
5-12R		52	l _e	0.0	38.5	-0.3	-3.9	- 0.9	- 15.6
5-15R		<u>}</u>	6	1.0	39.5	9.7	-2.9	2.1	- 11.6
4-11E		S	(4)	0.5	47	3.2	4.6	0.6	18.4
		}			····				
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Survey	Area:			Survey U				Building:	
Survey	[Init Da	NA scription:			ExT	erior_		7-883	<u>C</u>
Survey	Omt Des	scription:		Exterior	Whis				
,		El	ectra DP-6 Be	eta	I		Electra Di	P-6 Alpha	<del></del>
Loc. ID#	RCT ID#	Inst. ID#	Elevated Audible observed? "Y" or "N"	60-sec PAT (dpm/100cm2)	RCT ID#	Inst. ID#	4-sec Audible observed? "Y" or "N"	30-sec Static (gcpm)	90-sec PAT (dpm/100cm ² )
5w B-1-1		8	2	NA		7	у	6.0	۵, ن۸
- B-1	_	8	N	NA		7	N	NA	Ni.4
5.W.		8	د،	N A		7	N	NA	N A
SW >~1 ≅W	_	8	ν	NA		7	AJ.	NA	μa
A-1	-	8	עע	J. A		7	$\sim$	NA	,U ,A
M-1-1		8	ν.	NA		7	γ	10.0	NA
FN R-1-1 EW		Ś	Ņ	M		7	У	14.0	NI
2-1-Z 2w	_	ş	N	ji st		7	У	14.0	N'A
6m 8m		8	m	<i>N N</i>		7	<u> </u>	16.0	1.14
1-1-2	_	8	N	M		7	<u> </u>	₹. 0	M
×-1-1 €W		8	w	MA		7	У	14.0	144
X-1-5	_	ŝ	N	NA		?	У	4.0	- 40 كنر
3-1-1		8	ν	NA		7	<b>&gt;</b>	. 80	NA
NW A-1 NW	_	8	Ν	NA		7	N	NA	NA
6-1-1	_	ď	· ~	/wt		8	У	12.0	ist.
14-1:-1 14-1:-1		8	N	INL		8	y	/0 , d	NA
1-1-2 ww	-	8	N	MA		Š	У	6.0	NH
I-1-1	_	8	ν.	M		§	У	8,0	AH
I-1-2	_	8	~	M		8.	У	6.0	NA
₩₩ <u>j-i-l</u> ₩₩		8	2	M		ŝ	У	12.0	NA
2-1-i		8	N	<b>LM</b>	_	Š	У	40	Nót
2.1-Z	-	8	Ν	<i>iW</i> t		š	y	0.0	Mt
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urvey Area:	/	Survey Unit:	n .		Build		25.2
urvey Unit Desc			PERIL	276			8830
CT Initials/Date	/	RCT Initials/Date	i.	AU	RCT	Initials/Da	te: NA
efer to the Final St	ırvey NE Electra Scan & In	vestigation Survey	Form for	instrumentatio	n, surveyor &	approval in	nformation.
Legend	: "R"- Roof, "W" - W	est Wall, "S" – "C" –Ceilir			ast Wall, "	'N" – Nor	h Wall
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Results/Comments:

Electra alpha scans were performed at the locations detailed on the survey map(s). All required accessible areas were scanned. All initial scan results were <225 dpm/100cm², unless noted on the survey form.

Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the survey form.

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Page 4 of 12

439

* Designates corner closest to A-1 point of reference

Survey Area:	NA	Survey Unit:	Building:	F 2 0
Survey Unit De	escription:	EXTERIOR	1-8	43 C
	lktra	WALL .		
RCT Initials/Da	ate: fine 2 28 60	RCT Initials/Date: NA	RCT Initials/Date:	AU
Refer to the Fina	l Survey NE Electra Scan & I	nvestigation Survey Form for instrume	entation, surveyor & approval info	rmation.
Lege	end: "R"- Roof, "W" - V	West Wall, "S" - South Wall, "E	E" - East Wall, "N" - North	Wall
		"C" -Ceiling, "F" - Floor		
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Results/Comments:

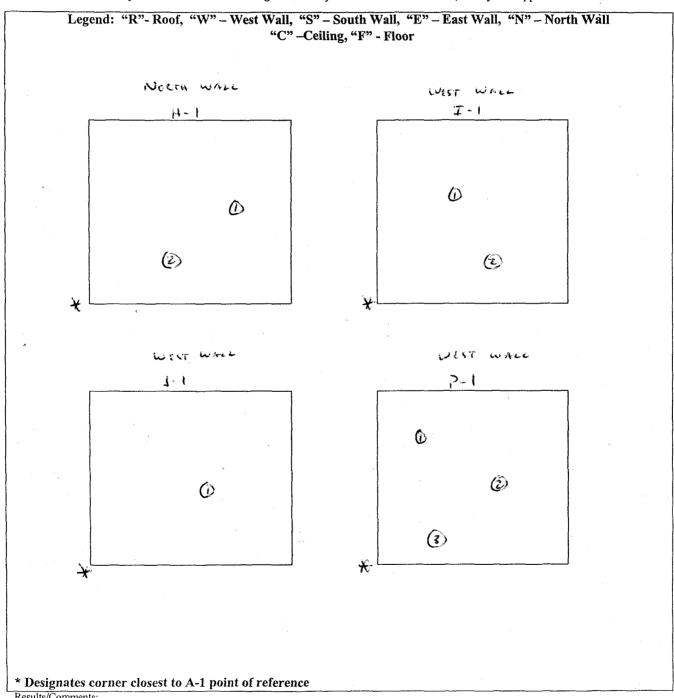
Electra alpha scans were performed at the locations detailed on the survey map(s). All required accessible areas were scanned. All initial scan results were <225 dpm/100cm², unless noted on the survey form.

Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the survey form.

3-1/31

Survey Area:	Survey Unit:	Building:
<b>№</b> A	EXTERIOR	7-8836
Survey Unit Description:		
<b>{</b> }	teaux ware	
RCT Initials/Date: fys / 2 27 63	RCT Initials/Date:	RCT Initials/Date: NA

Refer to the Final Survey NE Electra Scan & Investigation Survey Form for instrumentation, surveyor & approval information.



Results/Comments:

Electra alpha scans were performed at the locations detailed on the survey map(s). All required accessible areas were scanned. All initial scan results were <225 dpm/100cm², unless noted on the survey form.

Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the

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Attachment to RSFORMS-, 6.01-10 Page 14 of 15

SURVEY PACKAGE SURVEY MAP

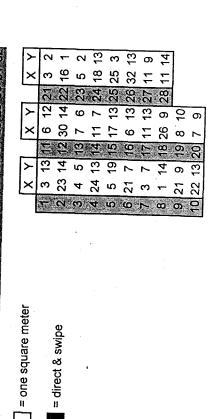
Building: T883C Survey Unit: Exterior

Package ID: 2000-01

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 $340 \, \text{m}^2$ Total Surface Area =

10% Scan Surface Area =  $34 \text{ m}^2$ 

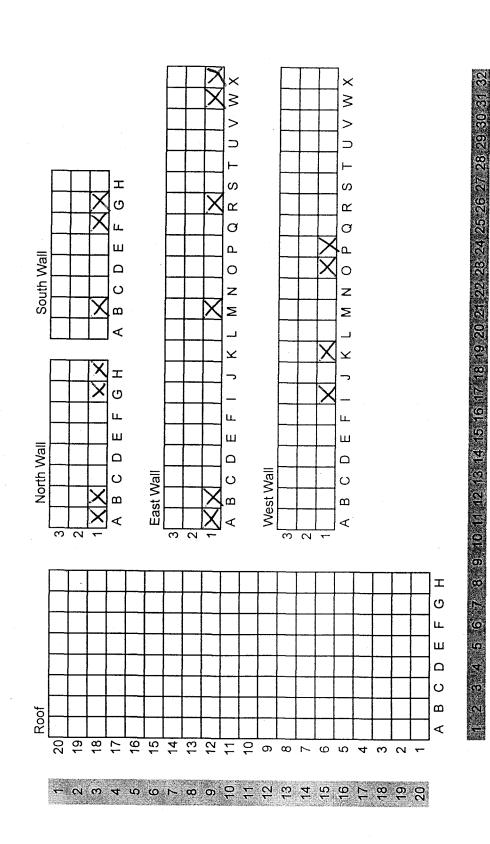
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Attachment to RSFORMS-16.01-10

SURVEY PACKAGE SURVEY MAP

Page 14 of 18

Package ID: 2000-01 Building: T883C Survey Unit: Exterior



SCAN LOCATIONS

Survey Area: NA Survey Unit: EXTERIOR Building: 7883C

Survey Unit Description

EXTERIOR

# **SURVEY SIGNATURE SHEET**

# Removable /Total Surface Activity Performed By

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RCT Printed Name	Employee #	RCT Signature	Date
	N		
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RCT Printed Name	Employee #	RCT Signature	Date
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RCT Printed Name	Employee #	RCT Signature	Date

# **Quality Control Measurements Performed By**

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RCT Printed Name	Employee # A	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date
		THE CONTRACTOR	Date
RCT Printed Name	Employee #	RCT Signature	Date

Survey Reviewed By

Ros Work		3-13-60
RCT Foreman Printed Name	RCT Foreman Signature	Date
•		

Survey Area: NA Survey Unit: EXTERIOR Building: T883C

Survey Unit Description

EXTERIOR

# **INSTRUMENT DATA SHEET**

# Removable Contamination Survey Instrument Data

Manufacturer	Eberline	Eberline				
Model	SAC4	BC4				
Inst. ID #	1	2	3	4	5	6
Serial #	1171	868				
Cal. Due Date	7.11.00	7.12.00				
Analysis Date	3.8.00	3.8.00		N		·
Instrument Bkg of a 10-min count time	1	42.5		1		
	4	76.3		/		
Instrument Eff (%)	.33	.25				
Instrument MDA						
2-min count time	9.0	71.9				
1						

#### **Total Surface Activity Instrument Data**

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vianufacturer	1	N.E.	Tech.	N.E.	Tech.	N.E.	Tech.						
Model		Ele	ctra	Ele	ectra	Ele	ctra						
Inst. ID#			7		8		9	1	0	1	1	1	2
Serial # / Probe #	#	***************************************											
Cal. Due Date						٨							
Survey Date							1						
Alpha Bkg Beta 90-sec opm 90-secount time count	ec cpm						H						
Alpha Eff Beta (%)	Eff												
Alpha MDA Beta I 90-sec dpm 90-secount time count	c dpm												

Page 2 of 3

Survey Area: NA	Survey Unit: EXTERIBE   Building: 78830
Survey Unit Description	
	Extenor

Sample ocation	RCT ID#	Inst ID #		Gross Counts (gcpm)		Net Counts (cpm)		Removal (dpm/	ole Activity 100cm2)
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Page <u>3</u> of <u>3</u>

Survey Area:	Survey Unit: Existing	Building:	7-1130
Survey Unit Descriptio	n e e e e e e e e e e e e e e e e e e e		
	Size and Litaria		

# SURVEY SIGNATURE SHEET

### Removable /Total Surface Activity Performed By

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RCT Printed Name		RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date
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RCT Printed Name	Employee #	RCT Signature	Date
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RCT Printed Name	Employee #	RCT Signature	Date
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RCT Printed Name	Employee #	RCT Signature	Date

# **Quality Control Measurements Performed By**

RCT Printed Name	Employee #	RCT Signature	Date
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RCT Printed Name	Employee #	RCT Signature	Date
	and the second s		
RCT Printed Name	Employee #	RCT Signature	Date
- January Company			
RCT Printed Name	Employee #	RCT Signature	Date

Survey Reviewed By

Ros Werter		3-01-100
RCT Foreman Printed Name	RCT Foreman Signature	Date

Page of 8

Survey Area:	1/14	Survey Unit:	Ex West Sel	Building:	7-6836
Survey Unit De	scriptio	n		·	
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# **INSTRUMENT DATA SHEET**

# **Removable Contamination Survey Instrument Data**

Manufacturer						7
Model						
Inst. ID#	1	2	3	4	5	6
Serial #						1
Cal. Due Date						NA
Analysis Date			2			1/4
Instrument Bkg cpm 10-min count time			N.			
Instrument Eff (%)		and the second s				
Instrument MDA 2-min count time						

### **Total Surface Activity Instrument Data**

nufactu	rer	N.E.	Tech.	N.E.	Tech.	N.E.	Tech.				and the second		
Model		Ele	ctra	Ele	ectra	Ele	ectra		•		part of the same o		
Inst. ID#			7		8 /		9	1	0	1	1	1	2
Serial # / P	robe #	1395	1368						and the state of t				
Cal. Due D		7-15	9. OU					K	7 7				
Survey Da	te	3 3	e la	ſ	7/V		ger	and the second					
Alpha Bkg 90-sec And count time	Beta Bkg 90-sec 🐣 count time	1.7	437										
Alpha Eff (%)	Beta Eff (%)	21.03	29.85										
Alpha MDA 90-sec count time	Beta MDA 90-sec count time					8							

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Page 7 of 8

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Survey	Area:			Survey Ur	nit:			Building:	
	X	<u> 71 A</u>			EXI	471612		7-8	F3 C
Survey	Unit Des	-	٤	7	1114				
		Ele	ectra DP-6 Be	reanae W.	1		Electra D	P-6 Alpha	
Loc. ID#	RCT ID#	Inst. ID#	Elevated Audible observed? "Y" or "N"	60-sec PAT (dpm/100cm2)	RCT ID#	Inst. ID#	4-sec Audible observed? "Y" or "N"	30-sec Static (gcpm)	90-sec PAT (dpm/100cm ² )
A-Z Ni		1	10	NA		1	У	14.0	NA
B-2 N		1	N	U.A.		ij	N	Mt	NA.
6-201		j	~			İ	7	14	NA
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Building:

Survey Unit:

	vey NE Electra Scan & Inv "R"-Roof, "W" - We	estigation Survey Forr			nformation.
Degenu.	K - K001, W - W	"C" -Ceiling,	tn wan, "E" – East 'F" - Floor	wan, "N" - Nor	th Wall
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Rev. 020900

survey form.

Survey Area:

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Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the

<225 dpm/100cm², unless noted on the survey form.

Survey Area:		Survey Unit:		Building:	
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Survey Unit D	rescription:	£ 126.11			
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Refer to the Fin	al Survey NE Electra Scan & In	vestigation Survey Forn	n for instrumentation, su	urveyor & approval info	ormation.
Leg	gend: "R"- Roof, "W" - W	est Wall, "S" - Sout	th Wall, "E" - East	Wall, "N" - North	Wáll
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Results/Comments:

Electra alpha scans were performed at the locations detailed on the survey map(s). All required accessible areas were scanned. All initial scan results were <225 dpm/100cm², unless noted on the survey form.

Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the survey form.

* Designates corner closest to A-1 point of reference

Survey Area:	NA	Survey Unit:		Building:	
Survey Unit Des	cription:	€ 1.78 6.00	72.	8830	N.The:
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Legen	d: "R"- Roof, "W" - V	Vest Wall, "S" - South W		Vall, "N" - North V	Väll
		"C" –Ceiling, "F" -	Floor		
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* Designates corner closest to A-1 point of reference

Electra alpha scans were performed at the locations detailed on the survey map(s). All required accessible areas were scanned. All initial scan results were <225 dpm/100cm², unless noted on the survey form.

Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the survey form.



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Survey Unit Des				- Julie	
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Results/Comments:

Electra alpha scans were performed at the locations detailed on the survey map(s). All required accessible areas were scanned. All initial scan results were <225 dpm/100cm², unless noted on the survey form.

Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the survey form.

Package ID: 2000-01 Building: T883A Survey Unit: Exterior

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Survey Area:	Survey Unit:	7 4478
<b>Survey Unit Descriptio</b>		
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# **SURVEY SIGNATURE SHEET**

### Removable /Total Surface Activity Performed By

RCT Printed Name	Employee #	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date
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RCT Printed Name	Employee #	RCT Signature	Date
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### **Quality Control Measurements Performed By**

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RCT Printed Name	Employee #	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date

Survey Reviewed By

Rev Worker		313-62
RCT Foreman Printed Name	RCT Foreman Signature	Date

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Page of 3-446

Survey Area:	Survey Unit:	XX 72 0 1 18	Building:	 8832
<b>Survey Unit Description</b>	n	<u> </u>		
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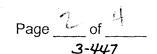
# **INSTRUMENT DATA SHEET**

# Removable Contamination Survey Instrument Data

Manufacturer					T T	
Model			<del></del>		-	
Inst. ID #	1	2	3	4	5	6
Serial #			<del> </del>			
Cal. Due Date			<del> </del>		And the same of th	
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Instrument Bkg upm 10-min count time			- I was a second and	L. C.		
Instrument Eff (%)			- And a second s			
Instrument MDA 2-min count time \$\mathcal{L}_{pm}\$		and the second s				

### **Total Surface Activity Instrument Data**

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Model	•	Ele	ctra	Ele	ectra	Ele	ectra						امسین
Inst. ID#			7		8 /		9	1	0	1	1	<u>.</u> 4:	2
Serial # / P		2376	1921		1								
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Alpha Bkg 90-sec cpm count time	Beta Bkg 90-sec cpm count time	2.7	432										
Alpha Eff (%)	Beta Eff (%)	26 46	22.7										:
Alpha MDA 90-sec dom count time	Beta MDA 90-sec dpm count time		271.9										



}	Area:			Survey U	nit:			Building:	
Survey	Unit De	escription				TERZ			83 C
		-our puon		. P . 5	24				
Loc.		E	lectra DP-6 B	eta 5	T		Electra 1	OP-6 Alpha	
ID #	RCT ID#	Inst. ID#	Elevated Audible observed? "Y" or "N"	60-sec PAT (dpm/100cm2)	RCT ID#	Inst. ID#	4-sec Audible observed? "Y" or "N"	30-sec Static (gcpm)	90-sec PAT (dpm/100cm ² )
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Refer to the Fina	al Survey NE Electra Scan &	Investigation Survey Form for instrumentat	ion, surveyor & approval information.
Leg	end: "R"- Roof, "W" -	West Wall, "S" - South Wall, "E" -	East Wall, "N" - North Wall
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Results/Comments:

Electra alpha scans were performed at the locations detailed on the survey map(s). All required accessible areas were scanned. All initial scan results were <225 dpm/100cm², unless noted on the survey form.

Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the survey form.

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Survey Area: IVA	Sui		EXTERIOR		T883'C
<b>Survey Unit Descrip</b>	otion		egggradinality in a si		
		ROOF	9 0	T INVEST	(SATION)

# **SURVEY SIGNATURE SHEET**

# Removable /Total Surface Activity Performed By

P. CHITTUM		P. Chille	3-4-00
RCT Printed Name		RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date
	·		
RCT Printed Name	Employee #	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date
	K		Date
RCT Printed Name	Employee #	RCT Signature	Date
RCT Printed Hame	Employee #	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date

# **Quality Control Measurements Performed By**

RCT Printed Name	Employee #	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date
	\rangle \rangl		
RCT Printed Name	Employee #	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date

Survey Reviewed By

Por Work		3-12-60
RCT Foreman Printed Name	RCT Foreman Signature	Date

Survey Area: NA Survey Unit: EXTRIOR Building: 7883C

Survey Unit Description

ROOF 9 PT INVESTIGATION SCAN

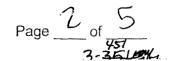
# **INSTRUMENT DATA SHEET**

#### **Removable Contamination Survey Instrument Data**

Manufacturer						
Model						-
Inst. ID #	1	2	3	4	5	6
Serial #						
Cal. Due Date						
Analysis Date						
Instrument Bkg apm 10-min count time			1			
Instrument Eff (%)			A			
Instrument MDA 2-min count time 4 pm						
•						

#### **Total Surface Activity Instrument Data**

Manufactur	er	N.E.	Tech.	N.E.	Tech.	N.E.	Tech.						
Model		Ele	ctra	Ele	ectra	Ele	ectra			-			
Inst. ID#			7		8		9	1	0	1	1	1	2
Serial # / P	robe#	2376	1921										
Cal. Due D	ate	8-	2.3-00					7	,				
Survey Dat	е	3-	3-00					/3					
Alpha Bkg 90-sec eff count time	Beta Bkg 90-sec	2.0	492		-								
Alpha Eff (%)	Beta Eff (%)	20.46	29.70							-			
Alpha MDA 90-sec 10000 count time	Beta MDA 90-sec Journal count time	35.1	289.8										·



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Survey				Survey Ur	nit:			Building:			
Survey	[Y.: 4 P		À		EXT	ERIC	o R	78830			
Survey	Unit Des	cription:	0.	30E	a p	7		451011	_		
		El	R & lectra DP-6 Bei	ta	Electra DP-6 Alpha						
Loc.	RCT	Inst.	Elevated	60-sec PAT	RCT	Inst.	4-sec Audible	30-sec Static	90-sec PAT		
ID#	ID#	ID#	Audible observed? "Y" or "N"	(dpm/100cm2)	ID#	ID#	observed? "Y" or "N"	(gcpm)	(dpm/100cm		
A-7R1						7			28.0		
A-7R2						7			23.3		
A-7R3				/		7			32.7		
A-7R4						7			31.3		
A-7R5			N/			7	19		26.7		
A-7R6			1			7		/ <del>/</del>	22.0		
A-7R7		/				7			27, 3		
4-788	_/					7	/		26.7		
A-7R9						7	/	lm2 AVG->	17.3		
								IM AVG	a6.1		
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Rev. 020900

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Survey Area:		Survey Unit:		Building:	
Survey Unit D	NA Description:		XTERIOR	78830	
	_	•	INVESTIGI		
RCT Initials/I		RCT Initials/Date	:	RCT Initials/Date: N/N	
				, surveyor & approval information.  st Wall, "N" – North Wall	
Leg	genu: K - K001, W		ng, "F" - Floor	st wan, it – North wan	
*			[		
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	3 4	9			
	A-7R				
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* Designates corner closest to A-1 point of reference Results/Comments:

Electra alpha scans were performed at the locations detailed on the survey map(s). All required accessible areas were scanned. All initial scan results were <225 dpm/100cm², unless noted on the survey form.

Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the survey form.

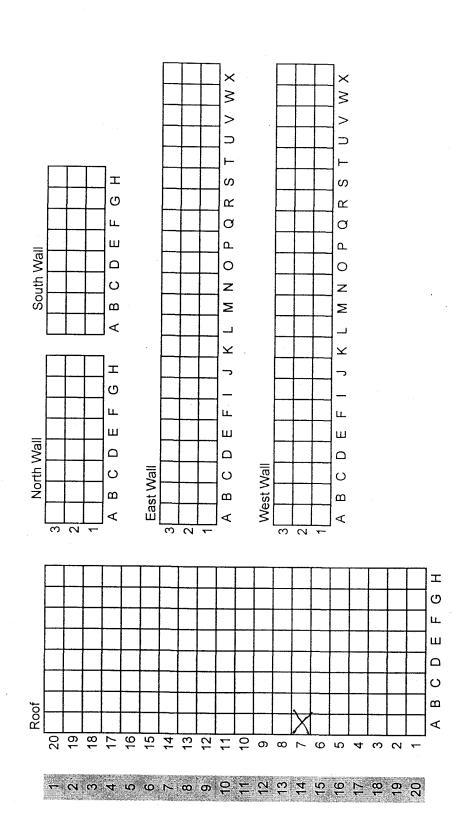
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SURVEY PACKAGE SURVEY MAP

Survey Unit: Exterior Package ID: 2000-01 Building: T883C



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Survey Area: NA	Survey Unit: Building:	TRY CON
Survey Unit Description	The second secon	
	KOUF SAMPLE LOCATION	

# **SURVEY SIGNATURE SHEET**

#### Removable /Total Surface Activity Performed By

M. LAWSON		motario	3-28-00
RCT Printed Name		RCT Signature	Date
A. PHERRIC		20 kg 2	3-22-00
RCT Printed Name		RCT Signature	Date
			/
RCT Printed Name		RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date
	1		
RCT Printed Name	Employee #	RCT Signature	Date ·
RCT Printed Name	Employee #	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date

### **Quality Control Measurements Performed By**

NOT a miles Maine	Employee#	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date
			And the state of t
RCT Printed Name	Employee #	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date
		•	
RCT Printed Name	Employee #	RCT Signature	Date

**Survey Reviewed By** 

SCHENAN 3-29-00

RCT Foreman Printed Name RCT Foreman Signature Date

Survey Area:	NA	Survey Unit: EXTERIOR	Building:	383C
Survey Unit D	Description:			8030
	Koot	Sample LOCATION	7	
RCT Initials/I		RCT Initials/Date: NA	RCT Initials/Da	ite: NA
Refer to the Fin	al Survey NE Electra Scan & In	vestigation Survey Form for instru	mentation, surveyor & approval i	nformation.
Leg	gend: "R"- Roof, "W" - W	est Wall, "S" - South Wall, "C" -Ceiling, "F" - Floo	"E" - East Wall, "N" - Nor	th Wàll
		c —cening, r - rioc	,	
	A-7R		H-11R	
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& SAMPLE CUTOUT

* Designates corner closest to A-1 point of reference

Results/Comments:

Electra alpha scans were performed at the locations detailed on the survey map(s). All required accessible areas were scanned. All initial scan results were <225 dpm/100cm², unless noted on the survey form.

Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the survey form.



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Survey Area: NA	Survey Unit:	Exterior	Building: T883C	
Survey Unit Descript	tion	-		
	Roof Sample Locati	ion		

# **INSTRUMENT DATA SHEET**

#### **Removable Contamination Survey Instrument Data**

Manufacturer	EBERLINE	EBERLINE	EBERLINE	EBERLINE		
Model	SAC4	BC4	SAC4	BC4		
Inst. ID #	1	2	3	4	5	
Serial #	823	966	1171	868		7
Cal. Due Date	9/6/00	9/15/00	7/11/00	7/12/00		
Analysis Date	3/28/00	3/28/00	3/28/00	3/28/00		
Instrument Bkg. 4m 10-min count time	0.5	42.9	0.3	35.2		5
Instrument Eff (%)	33	25	33	25	p. 1	
Instrument MDA 44m 2-min count time	9.6	72.2	8.3	65.9	#DIV/0!	#DIV/0!

### **Total Surface Activity Instrument Data**

													- Control of the Cont
Manufact	urer	N.E. Tech.		N.E. Tech.		N.E. Tech. N.E		N.E.	Tech.			and the little was a little of the little of	
Model		Elec	etra	Elec	ctra	Elec	ctra	Ele	ctra _				
Inst. ID #		<del>_</del>	7	×	3		9 10		9		11 12		2
Serial # / F	Probe #	2374	1919	2376	1921								
Cal. Due D	ate	9/8	/00	8/23	3/00	,							
Survey Da	te _	3/28	3/00	3/28	3/00								
	Beta Bkg 90 sec count time ofm	4.7	406	3.3	407			alek a salata da m				,	
Alpha Eff (%)	Beta Eff (%)	20.85	29.89	20.46	29.7		a partir	, is the second of the second					
90-sec <i>o</i> lpm	Beta MDA 90-sec Apm count time	48.2	262	42.6	264	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

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Survey Area: NA Survey Unit: **Building:** T883C EXTERIOR **Survey Unit Description ROOF SAMPLE LOCATIONS** 

			Tot	al Su	ırfac	ce A	ctivi	ty D	ata	She	et		
Sample location	RCT ID	Inst	ID #	1 .	ount time ec)	Gross (gc)	Count om)	1	AB (m)	Net c (cp	ounts (m)		ctivity 00cm2)
		α	β	α	β	α	. β	α	β	α	β	α	β
PRE			_	90	90					0.0	0	0.0	0
A-7R		7	7	90	90	30.0	425	6.7	385	23.3	40	111.8	134
POST			_	90	90					0.0	0	0.0	0
A-7R		7	7	90	90	30.0	423	7.3	402	22.7	21	108.9	70
PRE				90	90					0.0	0	0.0	0
A-7RQC		8	8	90	90	30.0	478	6.0	390	24.0	88	117.3	296
POST			_	90	90					0.0	0	0.0	0
A-7RQC		8	8	90	90	24.7	444	10.0	410	14.7	34	71.8	114
PRE				90	90					0.0	0	0.0	0
H-11		7	7	90	90	30.0	432	10.7	387	19.3	45	92.6	151
POST				90	90					0.0	0	0.0	0
H-11R		7	7	90	90	20.7	432	4.0	389	16.7	43	80.1	144
				90	90					0.0	0	0.0	0/
				90	90					0.0	0	0.0	0
				90	90					0.0	0	0.0	0
				90	90					0.0	0 /	0.0	0
				90	90_		1			0.0	0	0.0	0
				90	90					0.0	0	0.0	0
				90	90					0.0	0	0.0	0
				90	90	$\mathcal{M}$				0.0	0	0.0	0
				90	90					0.0	0	0.0	0
				90	90					0.0	0	0.0	0
				90	90		X			0.0	0	0.0	0
				90	90		1			0.0	0	0.0	0
		-		90	90		7			0.0	0	0.0	0
				90	90					0.0	0	0.0	0
				90	90					0.0	0	0.0	0
				90	90					0.0	0	0.0	0
QC				90	90					0.0	0	0.0	0
QC				90	90					0.0	0	0.0	0
QC				90	90					0.0	0	0.0	0
QC				90	90					0.0	0	0.0	0
QC				90	90					0.0	0	0.0	0

Note: QC measurements are to be collected by a different technician than the original survey. Mark the QC location number in the "Sample Location" column. Material background is assumed to be zero unless otherwise Page 4 of 5 noted. "LAB" ~ local area background.

Survey Area: NA Survey Unit: EXTERIOR Building: T883C
Survey Unit Description ROOF SAMPLE LOCATIONS

)		Re	emo	vable C	ontamii	nation	Data Sł	neet	
Sample location	RCT ID	Ins:		Gross Counts	(gcpm)	Net C			ole Activity 00cm2)
		α	β	α	β	α	β	α	β
PRE						0	0	0.0	0
A-7R		1	2	4.5	44	4	1.1	12.1	4
POST						0	0	0.0	00
A-7R		3	4	1	32	0.7	<u>-</u> 3.2	2.1	-13
PRE						0	0	0.0	0
A-7RQC		1	2	2	34	1.5	-8.9	4.5	-36
POST						0	0	0.0	0
A-7RQC		3	4	0.5	38.5	0.2	3.3	0.6	13
PRE						0	0	0.0	0
H-11		1	2	2	45	1.5	2.1	4.5	8
POST						0	0	0.0	0
H-11R		3	4	1.5	49	1.2	13.8	3.6	55
			-			0	0	0.0	0 /
						0	0	0,0	8
						0	0	0.0	0
						0	0	0.0	0
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# SURVEY PACKAGE COVER SHEET

Package ID: 2000-01	<b>Building:</b> T439A					
Survey Area: Not Applicable	Survey Area: Not Applicable Survey Unit: Interior					
<b>Survey Unit Description:</b> This trailer was plac north of Building 439, across the roadway, and is approximately 12' x 25' x 10' high.	· · · · · · · · · · · · · · · · · · ·	•				
Building Information:						
Survey Type: Reconnaissance Level Characterization S	urvey Final Status Survey X					
Building Type: Type 1 X Type 2 □ Type 3 □	•					
Classification: Class 1  Class 2  Class 3 X Unk	nown 🗆					
Contaminants of Concern: Plutonium X Uranium X C	Other 🗆					
Justification for Classification: This facility h contamination.	as no known history of radiolo	gical				
Special Support Requirements: Ladder, mani-	ft conffolding and/or remote	reach tools and				
instrumentation may be required for surveying in upper walls and ceilings on the interior and upp	n overhead areas. Overhead a					
Special Safety Precautions: Access to overhead caution when working in overheads.	ad areas may require additiona	l controls. Use				
Isolation Controls:						
Level 1 □ Level 2 X N/A □						
Labeling Requirements: The location where fi	xed and removable surveys ar	e performed will				
be marked using a sticker or a marker and then	•	_				
Survey Package Implementation:						
	$\wedge \wedge$					
RICK ROBERTS		9 18 dec. 400				
8/3	iological Engineer Signature	Date				
NOT APPLICABLE		N/A				
	S Manager Signature	Date				
H. B. ESTABROOKS		CAVI A				
	S Manager Signature	Date				
Survey Package Closure:						
v S						
RICK ROBERTS AND THE PROPERTY OF THE PROPERTY	A. Marine	3/2/22				
	S Radiological Engineer Signature	Date				
NOT APPLICABLE N/A N/A						
REFS Manager Printed Name	S Manager Signature	Date				
H. B. ESTADROOKS	tenahmer/	8/3/00				
RESS Manager Printed Name	S Manager Signature	Date				

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# SURVEY PACKAGE TRACKING FORM

Package ID: 2000-01	A STATE OF THE STA	Building: T439A					
Survey Area: Not App	licable	Survey Unit: Interior					
Initiator/ Date	Release Date	Validation Date	Closure Date				
All dais	112113	1979 8/3/50	1 1997 S. (2) (20				
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# SURVEY PACKAGE CORRECTION/CHANGE HISTORY FORM

Package ID: 2	2000-01	Building: T439A					
Survey Area:	Not Applicable	Survey Unit: Interior					
Change #	Description		Initiator/ Date	PRE			
1	The second second second	part Late Charles	2000	fill Co			
	Establish Link	45/100					
2	Council among in	you have for the first of	All anos	112			
	16215-302-33 Land						
3	Corrected Scan requiremen	<u>t</u>	Kom / 6-20-00				
<u> </u>							
				,			
		<u> </u>					
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# INITIAL SURVEY PACKAGE DESIGN FORM

Package ID: 200	0-01	Building: T439A		Type: 1		
Survey Area: No	t Applicable	Survey Unit: Inte	erior	Area (m ² ): 174		
Survey Unit Description: This trailer was placed on site 6/72, it's located immediately to the north of Building 439, across the roadway, and it's south of Building 444. The size of the trailer is approximately 12' x 25' x 10' high.						
Survey Type:			Classification:			
RLC Survey 🗆	FSS X		Class 1  Class	2 D Class 3 X Un	known 🗆	
Random/Uniform Surface Activity Measurements	Biased Surface Activity Measurements	Equipment Surface Activity Measurements	Media Samples	Volumetric Samples	Surface Activity Scans	
28	0	0	0	0	Biased	
Building:		Type:	William	Survey Area:		
Survey Unit:			Area (m²):			
Survey Unit Desc	eription:					
Survey Type:	<del></del>	Miles	Classification:			
RLC Survey □	FSS □		Class 1  Class	2 □ Class 3 □ U	Jnknown 🗆	
Random/Uniform Surface Activity Measurements	Biased Surface Activity Measurements	Equipment Surface Activity Measurements	Media Samples	Volumetric Samples	Surface Activity Scans	
,						
Building:		Туре:	Survey Area:			
Survey Unit:	***	0	Area (m²):			
Survey Unit Desc	ription:					
Survey Type:			Classification:	- Park the Committee of		
RLC Survey □	FSS 🗆		Class 1 □ Class 2 □ Class 3 □ Unknown □			
Random/Uniform Surface Activity Measurements	Biased Surface Activity Measurements	Equipment Surface Activity Measurements	Media Samples	Volumetric Samples	Surface Activity Scans	
Building:		Туре:	And Annual Andrews	Survey Area:	*****	
Survey Unit:	CANAL CANAL		Area (m²):	· · · · · · · · · · · · · · · · · · ·		
Survey Unit Desc	cription:					
Survey Type:			Classification:			
RLC Survey □	FSS □		Class 1 □ Class		Jnknown □	
Random/Uniform Surface Activity Measurements	Biased Surface Activity Measurements	Equipment Surface Activity Measurements	Media Samples	Volumetric Samples	Surface Activity Scans	

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# SURVEY PACKAGE SURVEY/SAMPLING INSTRUCTIONS FORM

Package ID: 2000-01	Building: T439A
Survey Area: Not Applicable	Survey Unit: Interior

Survey Unit Description: This trailer was placed on site 6/72, it's located immediately to the north of Building 439, across the roadway, and it's south of Building 444. The size of the trailer is approximately 12' x 25' x 10' high.

Measurement urface Activity	Number and Type	<b>a</b> .		
	1	Comments		
	INTERIOR FLOORS/WALLS/CEILINGS:	SEE NOTE 1		
Measurements 1	28 surveys will be taken per the attached survey	SEE NOTE 2		
	map.	SEE NOTE 3		
		SEE NOTE 4		
	QUALITY ASSURANCE SURVEYS	SEE NOTE 5		
		SEE NOTE 6		
	INTERIOR FLOORS/WALLS/CEILINGS:			
	5 surveys will be taken per direction from radiological engineering.			
	-			

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# SURVEY PACKAGE SURVEY/SAMPLING INSTRUCTIONS FORM (cont)

Package ID: 2000	-01	Building: T439A			
Survey Area: Not	Applicable	Survey Unit: Interior			
north of Building			/72, it's located immediately to the of Building 444. The size of the		
	Minimum Survey/Sampling	Measurer	nent Requirements		
Measurement	Number and Type		Comments		
Surface Scanning  Change #3  King 6-20-00	Biased surface scans will be performed interior floors in areas where contamin would accumulate. This includes sean corners, doorways and boundaries between different types of flooring.  No more than 10% of the total area wis scanned.  QUALITY ASSURANCE SCAN SUINTERIOR FLOORS:  5 percent of total number of scans or of scan area will be taken per direction for radiological engineering.	ation ns, cracks, ween  If be  RVEYS	SEE NOTE 1 SEE NOTE 2 SEE NOTE 3 SEE NOTE 4 SEE NOTE 5 SEE NOTE 6		
Media Samples	NONE				
Volumetric Samples	NONE				
Scans					

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164/242 PC

## SURVEY PACKAGE SURVEY/SAMPLING INSTRUCTIONS FORM (cont)

Package ID: 2000-01Building: T439ASurvey Area: Not ApplicableSurvey Unit: Interior

Survey Unit Description: This trailer was placed on site 6/72, it's located immediately to the north of Building 439, across the roadway, and it's south of Building 444. The size of the trailer is approximately 12' x 25' x 10' high.

## **Survey/Sampling Instructions**

**NOTE 1:** Surveys of the area were established on a random basis and are delineated on page 14, RSFORMS-16.01-10, of the survey package. Survey points will be taken in the middle of the survey grid and will be cross-referenced to a common reference point in the trailer. These surveys will be taken in accordance with PRO-476-RSP-16.02, "Radiological Surveys of Surfaces and Structures", for the following:

- Total alpha contamination
- Total beta contamination
- Removable alpha contamination
- Removable beta contamination
- Biased scan measurements for alpha then beta/gamma contamination

For total alpha and total beta surveys, the LAB will be determined at each survey point by placing a piece of plywood over the probe face that is at least 0.5 inch thick and performing an alpha count and a beta count. The material background for both total alpha surveys and total beta surveys will be considered to be 0 dpm/100 cm².

Alpha scanning using the NE Electra for the DP6-BD and DP8A probes will be in accordance with Letter SJR-001-99, "Alpha Scan Rates for Building 779 Cluster Final Status Surveys," and Letter SJR-004-99, "Performance of Scan Surveys with the Bicron/NE DP8 Probe for Building 779 Cluster Final Status Surveys," respectively. Beta scanning using the NE Electra.

**NOTE 2:** Quality assurance prescribed surveys of the area will be taken in accordance with PRO-476-RSP-16.02, "Radiological Surveys of Surfaces and Structures" per the requirements in PRO-479-RSP-16.05, "Radiological Survey/Sample Quality Control," for the following:

- Direct alpha contamination
- Direct beta contamination
- Scan measurements for alpha then beta/gamma contamination

The location of quality assurance surveys will be delineated by radiological engineering after the initial surveys are performed. Quality assurance surveys will be performed by a different individual than performed the original survey.

**NOTE 3:** The RCT shall document the results for all surveys performed and maintain with the survey instructions package.

**NOTE 4:** All survey instruments will be performance checked both prior to and after performing surveys, and both performance checks will be documented. Contact Radiological Engineering for direction if an instrument fails the post performance check.

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# SURVEY PACKAGE SURVEY/SAMPLING INSTRUCTIONS FORM (cont)

Package ID: 2000-01Building: T439ASurvey Area: Not ApplicableSurvey Unit: Interior

Survey Unit Description: This trailer was placed on site 6/72, it's located immediately to the north of Building 439, across the roadway, and it's south of Building 444. The size of the trailer is approximately 12' x 25' x 10' high.

### **Survey/Sampling Instructions**

**NOTE 5:** The following MDA requirements are a goal for each survey instrument. The MDA shall not exceed the Investigation Levels outlined in NOTE 6.

- 10 dpm/100 cm² for removable alpha contamination
- 50 dpm/100 cm² for total alpha contamination
- 500 dpm/100 cm² for removable beta contamination
- 2500 dpm/100 cm² for total beta contamination
- 150 dpm/100 cm² for alpha scan
- 7500 dpm/100 cm² for beta scan

**NOTE 6:** If a survey result exceeds the following investigation levels, contact radiological engineering before proceeding:

- 15 dpm/100 cm² for removable alpha contamination
- 75 dpm/100 cm² for total alpha contamination
- 750 dpm/100 cm² for removable beta contamination
- 3750 dpm/100 cm² for total beta contamination
- 225 dpm/100 cm² for alpha scan
- 11250 dpm/100 cm² for beta scan

An investigation will be performed into the elevated results.

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										AGL 9 01	15
	TOTAL SURFACE ACTIVITY SURVEY DATA FORM										
Survey A	rea: NOT AP	PLICABLE	S	urvey Un	it: INTE	RIOR		Build	ing: T43	9A	
	nit Descriptio oss the road			of Build	ding 444	. The size	e of the trail				
Doto	/ Time					nstrument	Data				
Inst.	/ Time No.: α					Probe No.	:				
α	<del></del>	-			_						
Inst.	Νο.: β,γ					Probe No.:	;				
β,γ Effic	iency (%): α		32	(cr	 om/dom)	Mat. Area	Bkød: α		βγ	(dnm	$/100 \text{ cm}^2$ )
MDC	(dpm/100 cm ²	'): α		Вγ						(4)	100 0111 )
Probe	Correction Fa	ctor: $\alpha_{\underline{}}$		βγ	(10	_					
Cal. I	Due Date:					Surv	ey Type:	Alpha	Bet	<u>-</u>	
Sample Number	Location / Description	Gross Co (cpm	)	LAB (cp	om)		Counts cpm)			**Net Activity Gross Activity - Mat. Area Bkgd. (dpm/100 cm ² )	
		α	β,γ	α	β,γ	α	β,γ	α	β,γ	α	β,γ
					-			<u> </u>			
					<u> </u>						
						r <del>-1,</del>			<u></u>		<del> </del>
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											-
						<del></del>					
							<u> </u>				
								<u> </u>	<del> </del>		ļ
							Gross Activity  Net Activity	У			
RCT Printed N	lame		Employee		civity - IVI	RCT Signatur			Dat	te	
RCT Technical Supervisor Printed Name Employee #				RCT Technical Supervisor Signature Date							

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		REMOVABLI	E SURFACE ACT	FIVITY DA	TA SURVE	Y FORM			2.7/21
Survey Area: NOT APPLICABLE  Survey Unit: INTERIOR Building: T439A									
	oss the roadway		placed on site 6 of Building 444						
10 Ingii	•		Smear Survey I	nstrument l	Data				
Count I	Date / Time:								
inst. No	).;		Probe N	lo.:					
MDC (	ficiency (%): α	βγ	Ry Inet RK	G· a	ß	•	(cpm	Δ	
Cal. Du	e Date:	<u> </u>	<u>βγ</u> Inst. BK Survey	Type: Alp	ha	Beta-Gamr	na	Ω.	
				-					
		, , , , , , , , , , , , , , , , , , ,	Removable	Survey Data	1				
Swipe Number	Location / Description	Comments	Gross C			Counts om			e Activity * 100 cm ² )
			α	βγ	α	βγ	C	ι	βγ
							<u> </u>		
				· · · · · · · · · · · · · · · · · · ·					
)									
				7.0					
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							<del>                                     </del>		
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							<del> </del>		
· · · · · · · · · · · · · · · · · · ·							1		
		* (GF	OSS Cts - Inst. Bl	$(g) \div (Eff.) =$	ACTIVITY				
RCT Printed N	ame	Employee #		RCT Signature			-	Date	
RCT Technical Supervisor Printed Name Employee # RCT Technical Supervisor Signature Date									

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SURI	FACE SCANNI	ING DATA	SHEET	
urvey Area: NOT APPLICABLE	Survey Unit: INTER	RIOR	Building: T439A	
Survey Unit Description: This trailer 439, across the roadway, and it's sallo high.				
	Scan Instru	ment Data		
Date / Time:				
111St. NU	Probe No.:			
Cal. Due Date:	Survey Type:	Alpha Beta-G	amma	
	Scan Surv	vey Data		
Sample Location	on /		Sca	n
Number Descrip	tion (	Comments	(dpm/10	$0 \text{ cm}^2$ )
			α*	β,γ*
		·		
			_	
				<u></u>
RCT Printed Name En	nployee #	RCT Signature		Date
RCT Technical Supervisor Printed Name En	nployee#	RCT Technical Supervisor	Signature	Date

169/242 PC

^{*} If an elevated count rate or a sustained audible increase in the count rate is observed during the scan survey, OR the rate meter alarm sounds, THEN: Scan the immediate vicinity to determine the bounds of the elevated activity, and take a "Total Surface Activity" measurement and record. Mark the location of most elevated activity on the surface with a self-adhesive label or equivalent, ensuring that the marking is not applied directly over the point of interest. Further analysis is required by RS Supervision.

# SURVEY PACKAGE CALCULATION WORKSHEET

Doolse	ID. 2000 01		D'11'	***************************************			
	ige ID: 2000-01	Wisc	Building: T439A				
Surve	Survey Area: Not Applicable Survey Unit: Interior						
north		ne roadway, and	ed on site 6/72, it's located in it's south of Building 444. Th				
X To	tal Surface Activity		☐ Media Surface Activity	7			
X Re	movable Surface Activit	ty	□ Volumetric Surface Ac	etivity			
Step 1:	Calculate the relative shift $\Delta$ $\Delta/\sigma_s = (DCGL-LBGR)/\sigma_s$ $\Delta/\sigma_s = 1.0$ where:	/σ _s .					
			is available and $\Delta/\sigma_s$ may vary betwired.	ween 1.0 and 3.0. The			
Step 2:		from the survey uni	hift and Table 7-1. Sign p is the est will be less than the $DCGL_w$ whe 345				
Step 3:		sed at RFETS are 0.	and $Z_{1-\beta}$ and the selected decision error 05 and 0.05 respectively. This yie				
Step 4:	Calculate Number of Data Po	oints (N) for Sign T	est using the following equation:				
	$N = \frac{(Z_{1-\alpha} + Z_{1-\beta})^2}{4(Sign  p - 0.5)^2}$	= 23.22					
Step 5:	Increase the number of data possible data losses. 23.22*		sure sufficient power of the tests a	nd to allow for			
Conclus	sion:						
A total	of 28 data points will be need	ed to satisfy MARS	SIM statistical requirements.	<b>M</b>			
RICK	ROBERTS			11/28/20			
	Printed Name		Project RE Signature	Date			
H.B. l	ESTABROOKS		A STATE OF THE STA	11/21/50			

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RESS RE Printed Name

170/242 RO 3-471 Date

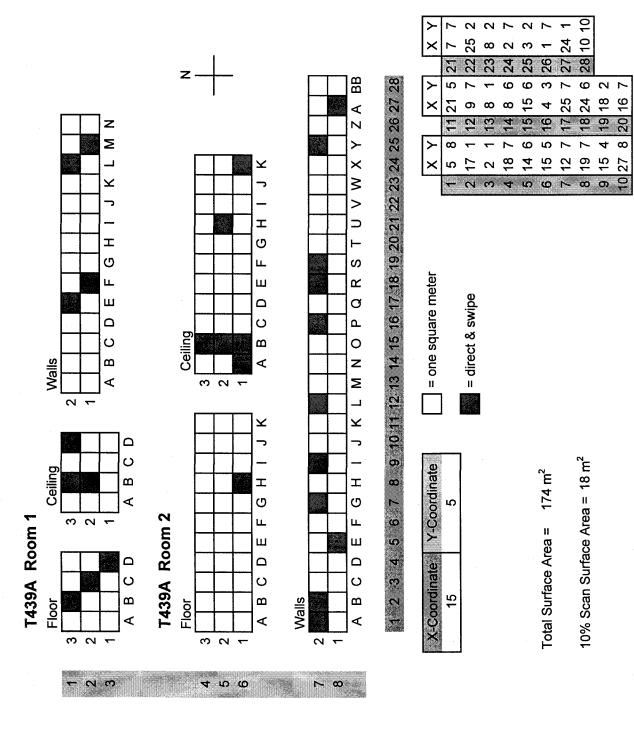
RESS RE Signature

SURVEY P	PACKAGE SURVEY MAP
Package ID: 2000-01	Building: T439A
Survey Area: Not Applicable	Survey Unit: Interior
	as placed on site 6/72, it's located immediately to the way, and it's south of Building 444. The size of the nigh.
Floor Area (m ² ): 45	Total Area (m ² ): 174
SEE ATTACHED SURVEY MAP	

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Package ID: 2000-01

Survey Unit: Interior Building: T439A



172/242

# SURVEY PACKAGE VALIDATION CHECKLIST FORM

Package ID: 2000-01	Bui	ilding: T439A	
Survey Area: Not Applicable	Sur	vey Unit: Interior	
Survey Type: Reconnaissance Level Characterizat	tion Surve	y □ Final Status Surve	y X
All Documentation Reviewed for Completion		RCT Supervisor	PRE
Scan Surveys		J.	EM
Total Activity Surveys		Au	KIN
Exposure Rate Surveys		NA	NA
Removable Surveys		· N	RM
Media Samples		N(X	NA
Volumetric Samples		A/W	NA
All Surveys and Samples Accounted For		RCT Supervisor	PRE
Scan Surveys		3/	Ðøy
Total Activity Surveys		N	EM
Exposure Rate Surveys		WIS	NA
Removable Surveys			EM
Media Samples		y (A	NA
Volumetric Samples		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	NA
Comments:			
Rox Worker			large 60
RICK ROBERTS PM CONTROL RICK ROBERTS	RCT	Supervisor Signature	Date
EKIC D. MCKAMEN	2.	ct RE Signature	6-12-00
Project RE Printed Name  H. B. ESTABROOKS	roje	CI AL SIGNALUTE	Date
J.W.Mahatte	X	CN phoff-	8-3-00
RESS Manager Printed Name	, RES	S Manager Signature	Date

8/3/00

173/242

Survey Area:

N/A

**Survey Unit:** 

Interior

**Building:** 

T439A

**Survey Unit Description:** 

Floors, walls, and ceilings of Trailer T439A

### 8. POST-PERFORMANCE ACTIVITIES

## 8.1 Documentation

Reviewed the above mentioned Survey Package and associated measurement data in accordance with PRO-478RSP-16.04, Radiological Survey/Sample Data Analysis. The following items are noted:

- 1. Various notes are provided on the Survey Package DQA Checklist. See DQA Checklist.
- 2. Various notes are provided within the Survey Package. See Survey Package.
- 3. DQA Checklist should have location to input Survey Area, Survey Unit, Building and Survey Unit Description to ensure improved tracking.
- 4. Section 7.2.2 Accuracy, of RSP-16.04 should be rewritten to provide usable accuracy analysis process. Interoffice Memorandum REVISION TO PRO-478-RSP-16.04, RADIOLOGICAL SURVEY/SAMPLE DATA ANALYSIS EDM-001-00 was written and concurred on to provide a usable accuracy analysis process.
- 5. Spreadsheets provided to perform statistical calculations.
- 6. Several forms have been generated to replace forms from RSP-16.02. RSP-16.02 should be revised to reflect this change/improvement.
- 7. Total number of data points is very conservative. Using MARSSIM guidance it can be shown that significantly less data points are statistically acceptable. See spreadsheets.
- 8. Survey maps need improvement. Methodology employed is one that was used prior to RSP-16.01 approval. Recommend scale maps with grid overlays or CAD drawing in the future. See B779 Closure Project maps as examples.
- 9. NE Electras 1547 and 1549 were used to perform QC Checks on 2/15/00. Post-operational performance tests were not performed because both instruments were tagged out due to punctured mylar. QC check data was ruled invalid and reperformed satisfactorily on 3/2/00.
- 10. See data sheets for corrected data.

Drepard by: 5 9 70 0 / 2-2-00

# APPENDIX A

Page 1 of 1

# **DQA** Checklist

§	Item	Performed By (Initials/Date)	Comments (number & attach)
7.1	Data Verification	Shy / 3-2-00	
7.1[1]	DQOs implemented as prescribed	AMY 3-2-30	
7.1[2]	All required supporting documents present	EMY / 3-2-00	
7.1[3]	Outliers / anomalies addressed	Em / 3-2-00	home.
7.2	Data Validation	500y / 3-2-00	
7.2.1	Survey/Sample Precision	Smy / 3-2-00	see squal skeets
7.2.2	Survey Accuracy	em ! 3-2-5	,
	Sample Accuracy	NA	no sam les toten
7.2.3	Data Representative of survey unit	FAMY / 3-2-02	<i>(</i>
7.2.4	Survey/Sample/Scan Completeness	eny / 3-2-00	10%
7.2.5	Data Comparable to related units	FANY / 3-2-00	yes Gampis
7.3	DQA complete	any 3-2-00	yes Group 3 see spread sheets
7.3[3]	Any measurement > DCGL _w ?	rmy / 3-2-02	no
7.3[4]	Mean > DCGL _w	NA	11/A
7.3.[5]	Any measurement > maximum DCGL	NA	N/A
7.4	Evaluation	N/A	N/A
7.4[1][D]	New survey package (if req'd)	NIA	N/A-
7.4[1][E]	Radiological improvement report (if req'd)	N/h	N/h
7.4[2]	Verify documentation complete	NA	NJA
8.0	Peer review	6/12/00 16-	of the
	Package submitted to project management	KBW 8-3-00	
9.1	Records to Records Center  (copy to project files)	18.18.00	

NOTE: The DQA Flow Chart (Appendix B) is provided as aid to illustrate the DQA process when performing survey/sample data analysis activities describe in this procedure.





# Removable Activity

Survey Area - N/A (dpm/100 cm²) Alpha

Survey Unit - Interior

Building - T439A

Survey Unit Description - Floors, walls and ceilings of Trailer T439A

Removable Contamination Data Sheet

20 dpm/100 cm² 28

DCGLW

Std Dev Mean

No measurement exceeds the DCGL_W

 $-0.3 \text{ dpm/100 cm}^2$  1.4 dpm/100 cm²

-0.3

# (dpm/100 cm²) Beta Removable Activity

Survey Area - N/A	Survey Unit - Interior	Building - 1439A	Survey Unit Description - Floors, walls and ceilings of Trailer T439A	Removable Contamination Data Sheet	DCGL _w 1000 dpm/100 cm ²	28	an 13.7 dpm/100 cm²	Std Dev 24.6 dpm/100 cm ²		No measurement exceeds the DCGL _w																	
Sur	Sur	Eng.	Sur	Ren	oc	_	Mean	Std		No																	
9	30	38	10	7	46	2	14	-5	30	<b></b>	30	30	9	10	-18	10	-18	-22	62	-22	30	50	9	-14	54	-18	88

# Total Surface Activity (dpm/100 cm²) Alpha 0 -19

	a - N/A	: - Interior	439A	Survey Unit Description - Floors, walls and ceilings of Trailer T439A	Total Surface Activity Data Sheet	100 dpm/100 cm ²	28	4.1 dpm/100 cm ²	9.9 dpm/100 cm ²		No measurement exceeds the $DCGL_{W}$	No measurement exceeds 75% of the the $$ DCGL $_{ m w}$	
	Survey Area - N/A	Survey Unit - Interior	Building - T439A	Survey Unit	Total Surfac	DCGLw	<b>C</b>	Mean	Std Dev		No measure	No measure	
5d/	0	-19	21	9	6-	-21	တ	ဇှ	က	က	ဇှ	9	c

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9	Location	ပ်	ပ်	ပ်-ပိ	$(C_{1+}C_2)/2$	RPD
9	C-2F	-19	12.56	-31.56	-3.22	980.1242
<b>o</b>	D-1F	21	-3.26	24.26	8.87	273.5062
9	E-2W	6	6.51	2.49	7.755	32.10832
က	E-1W	က	-6.51	9.51	-1.755	1.755 -541.8803
19	H-1F	ကု	12.56	-15.56	4.78	-325.523
က						
15	Precision (RPD) is out of specification due to low value survey	D) is out	of specifica	tion due to	low value su	rvey
က	measurements	ts				
ကု						
21	Recalculated N	Z				
16						
<b>o</b>	$\Delta/\sigma_{\rm s} = ({\rm DCGL\text{-}LBGR})/\sigma_{\rm s}$	LBGR)/o	, s			

$\Delta/\sigma_{\rm s} = ({\rm DCGL\text{-}LBGR})/\sigma_{\rm s}$	$\Delta/\sigma_{\rm s} = (100-50)/9.9$	$\Delta/\sigma_s = 5.05$ (default to 3)	Sign $p = 0.998650$	N = 10.88	10.88*1.2 = 13.05

N = 14

tivity	Beta
Acti	n ² )
ace	E
Surfac	100
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205	Survey Area - N/A	Δ/Ν -				
268	Survey Unit - Interior	- Interior				
446	Building - T439A	439A				
-138	Survey Unit	: Descripti	on - Floors	, walls an	d ceilings o	Survey Unit Description - Floors, walls and ceilings of Trailer T439A
-7	Total Surface Activity Data Sheet	e Activity	Data Shee	*		
-44	DCGLW	2000	5000 dpm/100 cm ²	$m^2$		
-288	<b>-</b>	78				
-67	Mean	-89.1	-89.1 dpm/100 cm ²	m²		
-406	Std Dev	264.1	264.1 dpm/100 cm ²	m²		
-188						
849	No measurement exceeds the DCGL _w	ement exc	eeds the D	CGLW		
-101	No measurement exceeds 75% of the the	ement exc	eeds 75% (	of the the	DCGL _W	
47						
0	Precision					
-57						
-27	Location	ပ်	ပ်	င္-င္	$(C_{1+}C_2)/2$	RPD
-154	C-2F	268	364.1	-96.1	316.05	-30.40658
-211	D-1F	446	634.6	-188.6	540.3	-34.90653
-205	E-2W	-288	-434.2	146.2	-361.1	-40.4874
-258	E-1W	-258	420.8	-678.8	81.4	-833,9066
-302	H-1F	849	501	348	675	51.55556
-382						
-295	Precision (R	PD) is out	of specifica	tion due to	Precision (RPD) is out of specification due to low value survey	ırvey
-272	measurements	nts				
-265						
-174	Recalculated N	N D				
-168						
-208	$\Delta/\sigma_s = (DCGL-LBGR)/\sigma_s$	L-LBGR)/a	ςs			

 $\Delta/\sigma_s$  = 9.47 (default to 3) Sign p = 0.998650 N = 10.88 10.88*1.2 = 13.05 N = 14  $\Delta/\sigma_s = (5000-2500)/264.1$  $\Delta/\sigma_s = (DCGL-LBGR)/\sigma_s$ Recalculated N measurements

Survey Area: NIA Survey Unit: WTERIOR Building: T439A

Survey Unit Description FLOOKS, WALLS, + CEILINGS OF TRAILER T439A

# SURVEY SIGNATURE SHEET

# Removable /Total Surface Activity Performed By

2 Chinam		P. WHE	76800
RCT Printed Name		RÇT/Signature	Date
R. Keney		2/1/1	E FERCO
RCT Printed Name		RCT Signature	Date
P. Conner		F. Shiff	1515800
RCT Printed Name	Printery	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date
		N	
RCT Printed Name	Employee #	RCT Signature	Date
	a comment		
RCT Printed Name	Employee #	RCT Signature	Date
		Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date

# **Quality Control Measurements Performed By**

			<del></del>
ARCHIC FACKSC RCT Printed Name		Cuchi Jaku	15 resco
1011 Tillined Name	_	RCT Signature	Date
2. Kerrey		All	1575800
RCT Printed Name		RCT Signature	Date
			And the same of th
RCT Printed Name	Employee #	RCT Signature	Date
	all colored an account to the colored and account of the colored and colored a		
RCT Printed Name	Employee #	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date
			Date

Survey Reviewed By

RCT Foreman Printed Name	,		2/21/08
The stophast timed (Value	RCT Fore	eman Signature	Date

Survey Area: NA Survey Unit: NICKICK Building: THISA Survey Unit Description

# **INSTRUMENT DATA SHEET**

# **Removable Contamination Survey Instrument Data**

Manufacturer	EBERLINE	EBERUNE	EBSLUE	EBERLINZ		/
Model	SKY	SACY	52.4	BC 4		
Inst. ID #	1	2	3	4	5	6/
Serial #	814	1407	1411	920		
Cal. Due Date	2-11-00	61500	6-19-00	4-14-00		
Analysis Date	EREBICO	EREDCO	EXE BCO	8 FEBCO	N	
Instrument Bkg ( 10-min count time	( C. 1 23.400)	0.5	0.4	40.5		**
Instrument Eff (%)	35330	34.3-35	<b>33</b> ~3 ² 33	25		
Instrument MDA 2-min count time dam	6.5	$c_{i,s}$	9.0	70.3		

# **Total Surface Activity Instrument Data**

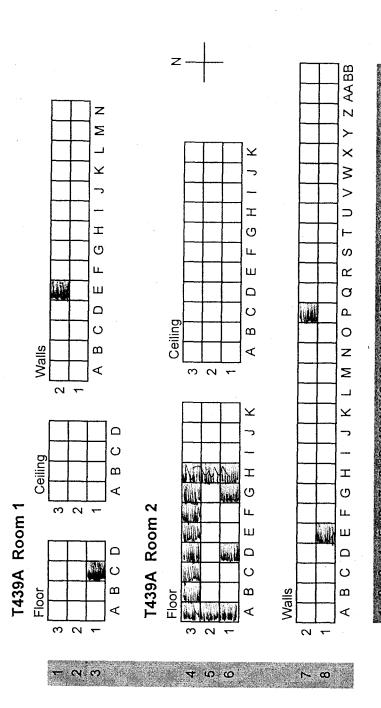
	nufactur	er	N.E.		N.E.	Tech.	N.E.	Tech.	ن ئ	eri ne				
	Model		Ele	ctra	Ele	ectra	Ele	ctra	Elec	TKA				
	Inst. ID#			7		8		9	1	0	1	1	1	2
	Serial # / P	robe#	1262	13c-7	1370	1158	1549	1354	1547	1432				
	Cal. Due D	ate	5 3	· cO	4-2	000	6.1	4.00	5-9	1.00				
	Survey Dat	е	16	BOO	151	Cocc	151	<b>ござ</b> いい	15 6	Sico			H	
504)	Alpha Bkg 90-sec am count time	Beta Bkg 90-sec com count time	4.0	3°11	20	465	2.7	437	1-3	471				
	Alpha Eff (%)	Beta Eff (%)	21.55	24.81	2092	29.47	18 80	gol	21-22	30.72				
	Alpha MDA 90-sec dom count time	Beta MDA 90-sec Jpm count time	44	258	33	284	43	234	29	274				

Page 2 of 9

Kage ID: 2000-01 Building: T439A

Survey Unit: Interior

SCAL LOCATIONS:

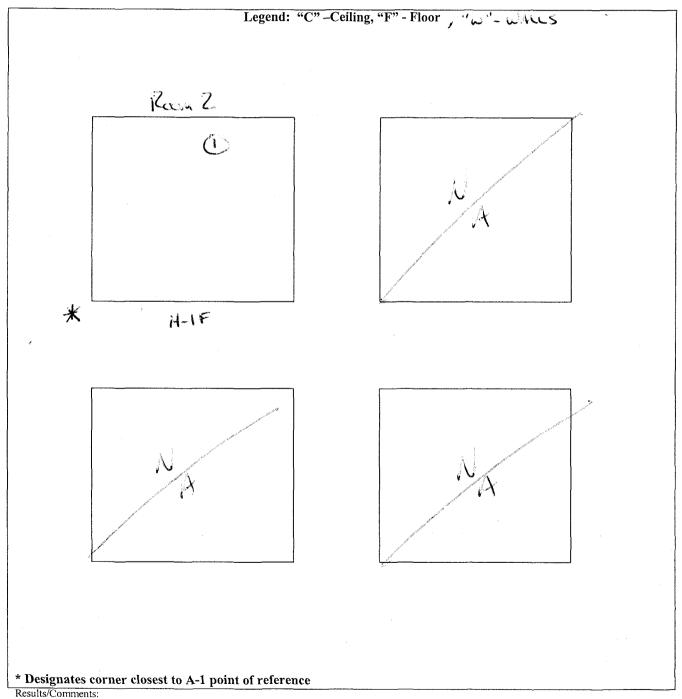


7-468 308 9 3-483

# Final Survey NE Electra Scan & Investigation Survey Map

Survey Area:	Survey Unit:		Building:	
Survey Unit Description:	Ancs, + Connes	S, OF TRAI	LEC T439Nt	
RCT Initials/Date: PC 2-7-00	RCT Initials/Date:	NA	RCT Initials/Date: N/A	

Refer to the Final Survey NE Electra Scan & Investigation Survey Form for instrumentation, surveyor & approval information.



Electra alpha scans were performed at the locations detailed on the survey map(s). All required accessible areas were scanned. All initial scan results were <225 dpm/100cm², unless noted on the survey form.

Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the survey form.

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Page U of U

# Final Survey NE Electra Scan & Investigation Survey Form

Survey		NIA		Survey U	133	TERIO	السا	Building:	SC, A
Survey	Unit Des	scription:	FLOORS,	water, +	-En.		E TRINE	ic T43914	
		El	ectra DP-6 B	eta			Electra D	P-6 Alpha	
Loc. ID#	RCT ID#	Inst. ID#	Elevated Audible observed? "Y" or "N"	60-sec PAT (dpm/100cm2)	RCT ID#	Inst. ID#	4-sec Audible observed? "Y" or "N"	30-sec Static (gcpm)	90-sec PAT (dpm/100cm ² )
Roo It									
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)3F		7	N			8	<i>N</i>		/
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5-16		7	.0	/it		8_	<u> </u>	/	
² -2W		_7_	N			8	<i>`</i> \`	/	
						1			
						4			

# Final Survey NE Electra Scan & Investigation Survey Form (Continuation Sheet)

Survey	Area:			Survey Un	nit:	eral of a	-2	Building:	
Survey	Unit Des	Scription:	f (3		1,0	IER10	<u></u>	1439	<i>y</i> - <del>1</del>
			G. C ectra DP-6 B	CHECK	5				
Loc.	RCT		Elevated		7.00	Г		OP-6 Alpha	
· ID#	ID#	Inst. ID#	Audible observed? "Y" or "N"	60-sec PAT (dpm/100cm2)	RCT ID#	Inst. ID#	4-sec Audible observed? "Y" or "N"	30-sec Static (gcpm)	90-sec PAT (dpm/100cm ² )
Ra									
C-1F Roc		10	N	Nla		10	N	ر ا	
Roc	<i>!</i>								
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Rev. 020900

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Page 6 of

Survey Area: NIA Survey Unit: INTERIOR Building: TUSGA
Survey Unit Description Floors, Littles, & CERLIES OF TRACE TUSGA

Sample .ocation	RCT ID#	•	t ID #		Counts pm)	1	Counts pm)	Removable Activity (dpm/100cm2)		
		α	β	α	β	α	β	α	β	
12001						<u> </u>				
3-37		1	4	<u> </u>	45	-0.1	1.5	-0.3	<u>(e:</u>	
0-2F		2	9	0.5	<u>46</u>	C	7.5		<u> 30</u>	
)4F		3	4	C	<u> 52</u>		9,5	1-2	58	
2°C		1	4	<u>`</u>	43	<u> </u>	2.5	~0.3	10	
3-3C		2	4	<u>Ċ</u>	4L	-05	C · S	1.5	2	
)-3C		3	4		56	0.1	1(.5	0.3	46	
-214		ᆜ	4	4.5	<u> </u>	0.4	Cis	1.2		
<u>-1w</u>		2	7	<u> </u>	94	~C.5	3.5	1.5	14.	
-2w		3	4	<u> </u>	40	-04	~ Cr S	1-2		
1-1W			4	C	- 48	~ C.1	"7,5"	-0.5	30	
200,		وسمن			,	pt. , 2:		<u> </u>		
4-16 4-10		2	4		34	-0.5	-1.5	-/.5	<u> </u>	
F-1 C		3	4	<i>`</i>	<u> </u>	-0.4	7.5	-1.2	30	
3-10		)	4	<u>&amp;</u>	42	-6.1	7,5	0.3	3c	
-2°		2	4	<u> </u>	42	-C.5	125	~1.5	<u></u>	
1-20		3	4		43	-0.4	2.5	w / 1, 2	<u>10</u>	
216		1	4	0.5	36	0.4	-4.5	1.2		
+7w		2	4	<u> </u>	<u>43</u>	0.5	2.5	-1.5	10	
5 2 hi		3	4	<u> </u>		-0.4	-4.5	1.2	<u> 18</u>	
		1	4	<u>().5</u>	35	0.4	· S. S	1.2	- 22	
51W		3	4	<u>C</u>	56	- 6.5	(5.5	-1.5	<u> </u>	
2-Zw			4	2.0	35	1.45	- 5-5	4.8	-22	
-2W		1	4	6.5	98	· C · I	7.5	~ 0.3	<u>30</u>	
2.26		3	4	6.5	53	0	(2.5)		<u> </u>	
·2W				0.5	42	0-1	4.5	6.3	<u></u>	
		1	4		37	-0.1	-3.5	-0.3	-14	
1200		2	4	<u>O</u>	<u> 54</u>	-0.5	13.5	.65	<u> </u>	
(-Zw		3	7	1.0	36	0,0	<u></u>	1.8	-18	
4-1W			7	<u> </u>	5ద	- C.1	9.5	-C.3	<u> 3e</u>	
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				AND AND TO SEE				<del>                                     </del>		
	and the second					<u> </u>		<del> </del>		

Survey Area: N/A Survey Unit: DITERIOR Building: THISA Survey Unit Description Cooks, Whees, * Ceremos of Rancer THISA

			T	otal	Surfa	ace A	ctiv	ity D	ata S	Shee	t		
Sample	RCT	Inst	ID#	Survey co		L/			Count		ounts		ctivity
location	ID#	α	β	( <b>s</b> ε	<b>β</b>	α (CI	om) β	(gc	pm) β	α (cr	om) β	(dpm/1	<mark>00cm2)</mark>  β
Ras				90	90		F		P		P		P
B-3F		7	-7	90	90	~ ~	£475-7	2.0	463	0	61		205
C-2.F		7	7	90	90	<u>てい</u> 575	402	1.3	509	-4.0		-101	768
D-1F		7	7	90	90	U.7	443	5.3	576	4.6	133	21	446
3-2C		7	7	90	90	2.7	424	1.3	383	-1.4	-41	-(c	-138
B-3C		7	7	90	90	2.7	411	7.0	409	-0:7	-2	3	-7
D-3C		7	; m-1	90	90	5.5	421	0.0	408	-4.6	-13	Ž Î	-44
EZW		7	-,	90	90	3.3	411	5.3	325	2.0	-86	Ci.	-288
FIW		7	7	90	90	2.7	345	1.0	315	-c.7	-20	3	-67
L-2W		7	7	90	90	2.0	433	2.7	312	0.7	-121	3	~406
M-IW		7	7	90	90	1.3	400	2.0	344	6.7	·-<\(\ze{\zeta}\)	3	-188
'200r				90	90								
HIF		رُ	*7	90	90	2.7	407	7.0	660	-07	753	-3	849
1A-1C		7	4	90	90	2.7	409	4.0	379	1.3	30	<i>ت</i> پ <b>)</b>	-101
BIC		.7	1	90	90	2.0	911	27	3,97	0.7	- 14	3	
B-2C		7	-7	90	90	0.0	411	2.0	411	2.0	0_	9	
13-3C		7	1	90	90	0:7	407	1.3	390	0.6	-17	3	-57
H-2C		_ 7		90	90	1.3	121	2.7	413	1.7	- కు	6	-27
K-1C		7		90	90	1.3	422	2.7	316	1.4	-46	G	-154
AZW		7		90	90	1.3	398	3.3	<b>535</b>	2.0	-63		-211
B-2 W		7	7	90	90	6.7	404	7.0	343	1.3	~(·)	<u>(</u> -	- 502
5-16		7	7	90	90	1.3	429	2.0	352	0.7	-7.7	3	- 258
G-2W		7	1	90	90	2.7	434	6.7	346	4.0	-90	19	-30.5
I-2W		7	7	90	90	1.3	429	2.0	315	0.7	114	3	-382
L-2W		7		90	90	6.7	381	4,0	20,3	3.3	88	15	-295
P-2W		7	7	90	90	1,3	410	2.0	329	0.7	-81	3	-219
12-2W		7	7	90	90	2.7	409	2.0	330	-0:7	-76	- 3	-205
5-2W		1		90	90	<i>©.</i> 7	4100	5-3	348	4.6	-52	21	-174
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Note: QC measurements are to be collected by a different technician than the original survey. Mark the QC location number in the "Sample Location" column. Material background is assumed to be zero unless otherwise noted. "LAB" ~ local area background.

Page _____ of _____

Survey Unit Description Cooks, which, Centures or Trainer 74394

Sample location	RCT ID#	Inst	ID#	Survey co	ec)		AB pm)		Count pm)	1	ounts om)		Activity 100cm2)
		α	β	α	β	α	β	α	β	.α	β	α	β
ROOM		20.01		90	90								
Y-ZW		7	7	90	90	3.3	404	6:1	356	3.4	-50	16 G	-168
49-1W		7	1	90	90	0:7	-10%	2.7	347	2.0	-62	C ₁	302-
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CZF QC		Ci	$\epsilon_{l}$	90	90	<b>E.</b> O	434	5.3	5301	5.3	105	.૪૬	349
DAPOC.		CI	G	90	90	1.3	445	2.7	573	1.4	128	7	425
EZWQC		a	q	90	90	3.9	300	2.0	344	-1.9	44	-10	146
14-14 QC		10	10	90	90	7.0	452	1.3	557	~6.7	105	-3	634h
<u></u> اس QC		10	10	90	90	2.7	357	4.0	345	1.3	-12	6	30

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Survey Area: N/A Survey Unit: Interior Building: 1439 A
Survey Unit Description

OC CHECKS

# **SURVEY SIGNATURE SHEET**

# Removable /Total Surface Activity Performed By

P. CHITTUM RCT Printed Name		RCT Signature	3.2.08
TOT Filling Rullie		Col Cignitude	
RCT Printed Name	Employee #	RCT Signature	Date
	·		
RCT Printed Name	Employee #	RCT Signature	Date
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RCT Printed Name	Employee #	RCT Signature	Date
	garanti markar		
RCT Printed Name	Employee #	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date

# **Quality Control Measurements Performed By**

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ite
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Survey Reviewed By

Tou Worsten		3/2/00
RCT Foreman Printed Name	RCT Forentian Signature	Date

Survey Area: N/A Survey Unit: Interior Building: T439 A
Survey Unit Description

QC CHECKS

# **INSTRUMENT DATA SHEET**

# **Removable Contamination Survey Instrument Data**

<u> </u>						
Manufacturer						
Model						
Inst. ID #	1	2	3	4	5	8
Serial #						
Cal. Due Date						
Analysis Date			N.			
Instrument Bkg upm 10-min count time			- N			
10-min count time						
Instrument Eff (%)	777		A			
Instrument MDA						
2-min count time						
dpm						

# **Total Surface Activity Instrument Data**

anufactu	rer	N.E.	Tech.	N.E.	Tech.	N.E.	Tech.						
Model		Ele	ctra	Ele	ectra	Ele	ctra		-				
Inst. ID#			7		8		9	10	)	- 1	1	1	2
Serial # / P	robe #	2385	1931										
Cal. Due D	ate		4.00				N						
Survey Da		3.2	.00										
Alpha Bkg 90-sec opm count time	Beta Bkg 90-sec cpm count time	2.0	435	÷			A						
Alpha Eff (%)	Beta Eff (%)	21.49	29.94								:		
Alpha MDA 90-sec 4pm count time	Beta MDA 90-sec Apm count time	33.4	210.1										

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3-491

Survey Area: NA Survey Unit: INTELIOR Building: T439A

Survey Unit Description

OC CHECKS

location	ID#	α	β	(S	· (^	LAB (cpm)		Gross Count (gcpm)		Net c	om)		ctivity 100cm2)
				α	e <b>c)</b> β	α	β	α (90	β	α	β	α	β
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.2.F QC		-7_	7	90	90	1.3	1/43	4	592	2.7	109	12.56	364.
).1.F.QC		7	1	90	90	2.0	483	1.3	665	-0.7		-3.26	634.
.ZWQC		7	7	90	90	3.3	475	4.7	342	1.4	190	6.51	- 434.7
<u></u> QC		7	7	90	90	1	1		445	-1.4	-130	-651	420.8
H-I-FQC		7	7	90	90	4.7	319	3.3	597	2.7	126	12.56	501.0

Note reasurements are to be collected by a different technician than the original survey. Mark the QC location number in the "Sample Location" column. Material background is assumed to be zero unless otherwise noted. "LAB" ~ local area background.

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# Final Survey NE Electra Scan & Investigation Survey Form

Survey	Area:	NA		Survey U	nit:			Building: 143					
Survey		scription			IM	ERIOR		7439	7 A				
		comption.	· (	DC CHE	11/8		•						
Loc.	Electra DP-6 Beta					Electra DP-6 Alpha							
ID#	RCT ID#	Inst. ID#	Elevated Audible observed? "Y" or "N"	60-sec PAT (dpm/100cm2)	RCT ID#	Inst. ID#	4-sec Audible observed? "Y" or "N"	30-sec Static (gcpm)	90-sec PAT (dpm/100cm ² )				
D.1.F		7	N	NA		-	N	N/A	N/A				
C.1.F		7	N	NA			N	N/N	N/A N/A				
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502 Rev. 020900

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# SURVEY PACKAGE COVER SHEET

Package ID: 2000-01	Building: T439A							
Survey Area: Not Applicable	Survey Unit: Exterior							
<b>Survey Unit Description:</b> This trailer was placed on site 6/72, it's located immediately to the north of Building 439, across the roadway, and it's south of Building 444. The size of the trailer is approximately 12' x 25' x 10' high.								
Building Information:								
Survey Type: Reconnaissance Level Characterization Survey  Final Status Survey X  Building Type: Type 1 X Type 2  Type 3  Classification: Class 1  Class 2  Class 3 X Unknown  Contaminants of Concern: Plutonium X Uranium X Other								
<b>Justification for Classification:</b> This facility h contamination.		ogical						
instrumentation may be required for surveying i	Special Support Requirements: Ladder, manlift, scaffolding, and/or remote reach tools and instrumentation may be required for surveying in overhead areas. Overhead areas include upper walls and ceilings on the interior and upper walls and roof on exterior.							
Special Safety Precautions: Access to overhead areas may require additional controls. Use caution when working in overheads.								
Isolation Controls:								
Level 1  Level 2 X N/A								
<b>Labeling Requirements:</b> The location where find the marked using a sticker or a marker and then	•							
Survey Package Implementation:								
and the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of t	0.4							
RICK ROBERTS		/ par /						
	iological Engineer Signature	1138130						
NOT APPLICABLE		Date N/A						
	S Manager Signature							
H. B. ESTABROOKS	3 Manager Signature	Date						
<u> </u>	SS Manager Signature	Date						
Survey Package Closure:	S Warager Signature	Date						
RICK ROBERTS		\$/a/c>						
RESS Radiological Engineer Printed Name RES	S Radiological Engineer Signature	Date						
NOT APPLICABLE N	'A	N/A						
REFS Manager Printed Name	S Manager Signature	Date						
TW WATER TOWN	> maparer	8/3/00						
RESS Manager Printed Name	Manager Signature	Date						

78/3/60

3-494 174/242 PU

## SURVEY PACKAGE TRACKING FORM

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Survey Area: Not Applica	ble	Survey Unit: Exterior	The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s			
Initiator/ Date	Release Date	Validation Date	Closure Date			
All desir	1/21/20		\$999 \$ 18 fm			
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# SURVEY PACKAGE CORRECTION/CHANGE HISTORY FORM

Package ID: 2000-01		Building: T439A				
Survey Area:	Not Applicable	Survey Unit: Exterior				
Change #	Description	ATAMAN AND AND AND AND AND AND AND AND AND A	PRE			
	to-han and army	for heller	200 400	1198		
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3		a Theorem .	AM wines	A Same		
4	corrected Scan requiremen	t	150m / 6-20-00	1		
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# INITIAL SURVEY PACKAGE DESIGN FORM

Package ID: 2000-01 Building: T439A		A Type: 1					
Survey Area: No	t Applicable	Survey Unit: Ext	erior	Area (m ² ): 117			
of Building 439		dway, and it's so	n site 6/72, it's louth of Building				
Survey Type:	3300		Classification:				
RLC Survey □	FSS X		Class 1   Class	2  Class 3 X Un	known □		
Random/Uniform Surface Activity Measurements	Biased Surface Activity Measurements	Equipment Surface Activity Measurements	Media Samples	Volumetric Samples	Surface Activity Scans		
28	0	0	0	0	Biased		
Building:		Туре:		Survey Area:			
Survey Unit:			Area (m²):				
Survey Unit Description:							
Survey Type:		,	Classification:	****			
RLC Survey □	FSS □		Class 1 □ Class 2 □ Class 3 □ Unknown				
Random/Uniform Surface Activity Measurements	Biased Surface Activity Measurements	Equipment Surface Activity Measurements	1 - 1 - 1		Surface Activity Scans		
Building:		Type:		Survey Area:			
Survey Unit:			Area (m²):				
Survey Unit Desc	cription:						
Survey Type:			Classification:	, <u>, , , , , , , , , , , , , , , , , , </u>			
RLC Survey □	FSS □	·	Class 1 □ Class 2 □ Class 3 □ Unknown □				
Random/Uniform Surface Activity Measurements	Biased Surface Activity Measurements	Equipment Surface Activity Measurements	Media Samples	Volumetric Samples	Surface Activity Scans		
Building:		Туре:		Survey Area:			
Survey Unit:			Area (m ² ):				
Survey Unit Desc	cription:			-			
Survey Type:	ACCOMPANY.		Classification:				
RLC Survey □	FSS □		Class 1 □ Class	2 □ Class 3 □ U	Jnknown 🗆		
Random/Uniform Surface Activity Measurements	Biased Surface Activity Measurements	Equipment Surface Activity Measurements	Media Samples	Volumetric Samples	Surface Activity Scans		

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## SURVEY PACKAGE SURVEY/SAMPLING INSTRUCTIONS FORM

Package ID: 2000-01	Building: T439A
Survey Area: Not Applicable	Survey Unit: Exterior

**Survey Unit Description:** This trailer was placed on site 6/72, it's located immediately to the north of Building 439, across the roadway, and it's south of Building 444. The size of the trailer is approximately 12' x 25' x 10' high.

# Minimum Survey/Sampling Measurement Requirements

Measurement	Number and Type	Comments
Surface Activity	EXTERIOR WALLS/ROOF:	SEE NOTE 1
Measurements	28 surveys will be taken per the attached survey	SEE NOTE 2
	map.	SEE NOTE 3
		SEE NOTE 4
	QUALITY ASSURANCE SURVEYS	SEE NOTE 5
		SEE NOTE 6
	EXTERIOR WALLS/ROOF:	
	5 surveys will be taken per direction from radiological engineering.	
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## SURVEY PACKAGE SURVEY/SAMPLING INSTRUCTIONS FORM (cont)

Package ID: 2000-01	Building: T439A
Survey Area: Not Applicable	Survey Unit: Exterior

Survey Unit Description: This trailer was placed on site 6/72, it's located immediately to the north of Building 439, across the roadway, and it's south of Building 444. The size of the

# trailer is approximately 12' x 25' x 10' high. Minimum Survey/Sampling Measurement Requirements **Comments** Measurement Number and Type **EXTERIOR WALLS/ROOF: SEE NOTE 1 Surface Scanning** Biased surface scans will be performed on the **SEE NOTE 2** exterior where contamination would accumulate. **SEE NOTE 3** This includes seams, cracks and corners. Both the exterior walls and roof will be scanned. **SEE NOTE 4 SEE NOTE 5** No more than 10% of the total area will be **SEE NOTE 6** scanned. **QUALITY ASSURANCE SCAN SURVEYS EXTERIOR WALLS/ROOF:** 5 percent of total number of scans or of total scan area will be taken per direction from radiological engineering. NONE Media Samples Volumetric **NONE** Samples Isotopic Gamma **NONE** Scans

#### SURVEY PACKAGE SURVEY/SAMPLING INSTRUCTIONS FORM (cont)

Package ID: 2000-01Building: T439ASurvey Area: Not ApplicableSurvey Unit: Exterior

Survey Unit Description: This trailer was placed on site 6/72, it's located immediately to the north of Building 439, across the roadway, and it's south of Building 444. The size of the trailer is approximately 12' x 25' x 10' high.

#### Survey/Sampling Instructions

**NOTE 1:** Surveys of the area were established on a random basis and are delineated on page 14, RSFORMS-16.01-10, of the survey package. Survey points will be taken in the middle of the survey grid and will be cross-referenced to a common reference point in the trailer. These surveys will be taken in accordance with PRO-476-RSP-16.02, "Radiological Surveys of Surfaces and Structures", for the following:

- Total alpha contamination
- Total beta contamination
- Removable alpha contamination
- Removable beta contamination
- Biased scan measurements for alpha then beta/gamma contamination

For total alpha and total beta surveys, the LAB will be determined at each survey point by placing a piece of plywood over the probe face that is at least 0.5 inch thick and performing an alpha count and a beta count. The material background for both total alpha surveys and total beta surveys will be considered to be 0 dpm/100 cm².

Alpha scanning using the NE Electra for the DP6-BD and DP8A probes will be in accordance with Letter SJR-001-99, "Alpha Scan Rates for Building 779 Cluster Final Status Surveys," and Letter SJR-004-99, "Performance of Scan Surveys with the Bicron/NE DP8 Probe for Building 779 Cluster Final Status Surveys," respectively. Beta scanning using the NE Electra.

**NOTE 2:** Quality assurance prescribed surveys of the area will be taken in accordance with PRO-476-RSP-16.02, "Radiological Surveys of Surfaces and Structures" per the requirements in PRO-479-RSP-16.05, "Radiological Survey/Sample Quality Control," for the following:

- Direct alpha contamination
- Direct beta contamination
- Scan measurements for alpha then beta/gamma contamination

The location of quality assurance surveys will be delineated by radiological engineering after the initial surveys are performed. Quality assurance surveys will be performed by a different individual than performed the original survey.

**NOTE 3:** The RCT shall document the results for all surveys performed and maintain with the survey instructions package.

**NOTE 4:** All survey instruments will be performance checked both prior to and after performing surveys, and both performance checks will be documented. Contact Radiological Engineering for direction if an instrument fails the post performance check.

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## SURVEY PACKAGE SURVEY/SAMPLING INSTRUCTIONS FORM (cont)

Package ID: 2000-01

Building: T439A

Survey Area: Not Applicable

Survey Unit: Exterior

Survey Unit Description: This trailer was placed on site 6/72, it's located immediately to the north of Building 439, across the roadway, and it's south of Building 444. The size of the trailer is approximately 12' x 25' x 10' high.

#### **Survey/Sampling Instructions**

**NOTE 5:** The following MDA requirements are a goal for each survey instrument. The MDA shall not exceed the Investigation Levels outlined in NOTE 6.

- 10 dpm/100 cm² for removable alpha contamination
- 50 dpm/100 cm² for total alpha contamination
- 500 dpm/100 cm² for removable beta contamination
- 2500 dpm/100 cm² for total beta contamination
- 150 dpm/100 cm² for alpha scan
- 7500 dpm/100 cm² for beta scan

**NOTE 6:** If a survey result exceeds the following investigation levels, contact radiological engineering before proceeding:

- 15 dpm/100 cm² for removable alpha contamination
- 75 dpm/100 cm² for total alpha contamination
- 750 dpm/100 cm² for removable beta contamination
- 3750 dpm/100 cm² for total beta contamination
- 225 dpm/100 cm² for alpha scan
- 11250 dpm/100 cm² for beta scan

An investigation will be performed into the elevated results.

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		Т	OTAL S	SURFACI	E ACTIV	TTY SURV	EY DATA I	ORM			
Survey A	rea: NOT AP	PLICABLE	E   8	Survey Ur	it: EXT	ERIOR	MIN	Build	ling: T439	9A	
Survey U	nit Descriptio	n: This trai	ler was	placed	on site 6	72, it's lo	cated imm	ediately	to the no	rth of Bu	ilding
439, acr	oss the road	way, and it	's south	of Buil	ding 444	4. The size	e of the trai	ler is app	oroximate	ely 12' x 2	25' x 10'
high.											
D-4-	/ <b>T:</b>			Total	Surface	Instrument	Data				
Inst	/ Time No.: α		<del></del>			Probe No.	•				
α						. I TOUC INO.	•				
lnst.	Νο.: β,γ					Probe No.:					
β,γ							•				2
MDC	iency (%): α C (dpm/100 cm²	2), ~	βγ	(c ₁	om/dpm)	Mat. Area	Bkgd: α		βγ	(dpm	$1/100 \text{ cm}^2$
Probe	e Correction Fa	ctor: $\alpha$		ρ <u>γ</u> βν	(10	00 cm ² /prob	ne area)				
	D D					~		Alpha	Bet	a _	
Sample	Location /	Cross C	t-	LAD	D1 J	<b>N</b> T-4	O	*0	A -4!!4		Activity
Number	Description	Gross C (cpn			Bkgd om)		Counts cpm)		Activity 100 cm ² )		Activity - rea Bkgd.
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RCT Printed N	Name		Employee		<b>y</b>	RCT Signatur			Date	2	
RCT Technica	RCT Technical Supervisor Printed Name Employee #					RCT Technical Supervisor Signature Date					

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		REMOVABLE S	URFACE ACT	IVITY DAT	ΓA SURVE	Y FORM			·····
Survey A APPLICA	rea: NOT ABLE	Survey Unit: EXTERIOR Building: T439A						***************************************	
Survey Unit Description: This trailer was placed on site 6/72, it's located immediately to the north of Building									
		, and it's south of							
10' high.									
			Smear Survey I	nstrument I	<b>D</b> ata				
Count I	Date / Time:								
Inst. No	).:(0/).	βγ	Probe N	o.:				_	
MDC (	nciency (%): α lnm/100 cm ² ):	Βγ	Ry Inet RK	G: a	ſ	₹√	(cpm	1	
Cal. Du	e Date:	α	Survey	Type: Alp	ha	Beta-Gamn	na	7	
				- <b>7</b> 1					
			Removable	Survey Data	1				
Swipe Number	Location / Description	Comments	Gross C		ł	Counts pm			e Activity * 100 cm ² )
			α	βγ	α	βγ	0	ι	βγ
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RCT Printed N	ame	Employee #		RCT Signature				Date	
RCT Technica	Supervisor Printed Name	Employee #		RCT Technical	Supervisor Signat	ure		Date	

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	SURF	ACE SCA	NNING DATA	SHEET	
Jurvey Area: NOT APPLICABLE Survey Unit: EXTERIOR			Building: T439A		
Survey Unit Description 139, across the road 10' high.	n: This trailer way, and it's s	was placed on south of Building	site 6/72, it's located in g 444. The size of the	immediately to the no trailer is approximate	orth of Building tely 12' x 25' x
		Scan I	nstrument Data		
Date / Time:					
nst. No.:		Probe No.:_			
nst. No.: Cal. Due Date:		Survey Type	e: Alpha Beta-C	Gamma	
		Scar	n Survey Data		
Sample	Location			Sc	
Number	Descripti	1	Comments	(dpm/10	
	•			α*	β,γ*
			100		
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			····		<del> </del>
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CT Printed Name	Emr	loyee #	RCT Signature		Date
		•			
CT Technical Supervisor Printed Na	ame Emr	loyee #	RCT Technical Supervisor	Signature	Date
-		•		-	

* If an elevated count rate or a sustained audible increase in the count rate is observed during the scan survey, OR the rate meter alarm sounds, THEN: Scan the immediate vicinity to determine the bounds of the elevated activity, and take a "Total Surface Activity" measurement and record. Mark the location of most elevated activity on the surface with a self-adhesive label or equivalent, ensuring that the marking is not applied directly over the point of interest. Further analysis is required by RS Supervision.

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## SURVEY PACKAGE CALCULATION WORKSHEET

<b>Package ID:</b> 2000-01	Building: T439A						
Survey Area: Not Applicable Survey Unit: Exterior							
<b>Survey Unit Description:</b> This trailer was placed on site 6/72, it's located immediately to the north of Building 439, across the roadway, and it's south of Building 444. The size of the trailer is approximately 12' x 25' x 10' high.							
X Total Surface Activity	☐ Media Surface Activity						
X Removable Surface Activity	☐ Volumetric Surface Activity	<b>y</b>					
Step 1: Calculate the relative shift $\Delta/\sigma_s$ . $\Delta/\sigma_s = (DCGL-LBGR)/\sigma_s$ $\Delta/\sigma_s = 1.0$							
where: A value of 1.0 was chosen since no survey data use of 1.0 maximizes the number of surveys re	is available and $\Delta/\sigma_s$ may vary between 1 quired.	1.0 and 3.0. The					
Step 2: Determine Sign p using the calculated relative that a random measurement from the survey ur median is actually at the LBGR. Sign $p = 0.84$	it will be less than the DCGL _w when the						
Step 3: Determine Decision Error Percentiles for $Z_{1-\alpha}$ are Typical ( $\alpha$ ) and ( $\beta$ ) values used at RFETS are value of 1.645 and 1.645 respectively.							
Step 4: Calculate Number of Data Points (N) for Sign	Test using the following equation:						
$N = \frac{(Z_{1-\alpha} + Z_{1-\beta})^2}{4(Sign  p - 0.5)^2} = 23.22$							
Step 5: Increase the number of data points by 20% to e possible data losses. 23.22*1.2 = 27.86	nsure sufficient power of the tests and to	allow for					
Conclusion:							
A total of 28 data points will be needed to satisfy MAR	SSIM statistical requirements.						
RICK ROBERTS	A Company of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the State of the S	1/22/03					
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RESS RE Printed Name	RESS RE Printed Name RESS RE Signature Date						

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# SURVEY PACKAGE SURVEY MAP

Package ID: 2000-01	Building: T439A							
Survey Area: Not Applicable	Survey Unit: Exterior							
<b>Survey Unit Description:</b> This trailer was placed on site 6/72, it's located immediately to the north of Building 439, across the roadway, and it's south of Building 444. The size of the trailer is approximately 12' x 25' x 10' high.								
Floor Area (m ² ): 45	Total Area (m ² ): 117							
SEE ATTACHED SURVEY MAP								

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Package ID:2000-01 Building: T439A Survey Unit: Exterior Delte - Se Rivin 1 to Sovey Max South Wall North Wall Roof West Wall 0 0 0 z z z Σ Σ Σ മ __ ⋖ ¥ ¥ ¥ _ 7 7 っ ー _ I ェ ェ ტ ഗ ഗ East Wall ட Ц. щ ш Ш Ш **T439A Exterior** Δ Δ Δ O ပ ပ O 0 മ മ മ ∢ ⋖ ⋖ ⋖ 2 φ **/** - U 0 4 v ထတ

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= one square meter

Y-Coordinate

X-Coordinate

= direct & swipe

Total Surface Area = 117 m²

10% Scan Surface Area =  $12 \text{ m}^2$ 

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Survey Unit: Exterior

Building: T439A

Package ID: 2000-01

Roof - Revision 1

one square meter 6 7 8 9 10 11 12 13 14 15 16 17 Ø ۵ 0 z ∑ _ ¥ _ Y-Coordinate **T439A Exterior Roof** I G ш 4 5 Ш Ω X-Coordinate က O 1 2 Ω Ŋ ⋖ 4 က 2 + 0 € 4

Roof Surveys randomly chosen with original number of survey points (9 survey points)

2 8 4 × ω တ 9 4 2 8 4 5 9 7 8 6

= direct & swipe

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# SURVEY PACKAGE VALIDATION CHECKLIST FORM

Package ID: 2000-01 Building: T439A					
Survey Area: Not Applicable	Survey Unit: Exterior	Wilder Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control Control			
Survey Type: Reconnaissance Level Characterization	on Survey Final Status Survey	уХ			
All Documentation Reviewed for Completion	RCT Supervisor	PRE			
Scan Surveys	.09	EM			
Total Activity Surveys	A	RM			
Exposure Rate Surveys	NA	NA			
Removable Surveys	9/	EMM			
Media Samples	NA	NA			
Volumetric Samples	NA	NA			
All Surveys and Samples Accounted For	RCT Supervisor	PRE			
Scan Surveys	N. N. S.	EM			
Total Activity Surveys	in the second	pm			
Exposure Rate Surveys	NA	NA			
Removable Surveys	N	Egraj			
Media Samples	NA	NA			
Volumetric Samples	NA	NA			
Comments:		TRIVO.			
Par Wilson		4.4.0			
RCT Supervisor Printed Name	RCT Supervisor Signature	Date			
RICK ROBERTS	20,m	6-12-00			
Project RE Printed Name	Project RE Signature	Date			
T.W. Mahata RESS Manager Printed Name	RES Manager Signature	8-3-00 Date			

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Survey Area:

N/A

**Survey Unit:** 

Exterior

**Building:** 

T439A

**Survey Unit Description:** 

Roof and walls of Trailer T439A

#### 8. POST-PERFORMANCE ACTIVITIES

#### 8.1 Documentation

Reviewed the above mentioned Survey Package and associated measurement data in accordance with PRO-478RSP-16.04, Radiological Survey/Sample Data Analysis. The following items are noted:

- 1. Various notes are provided on the Survey Package DQA Checklist. See DQA Checklist.
- 2. Various notes are provided within the Survey Package. See Survey Package.
- 3. DQA Checklist should have location to input Survey Area, Survey Unit, Building and Survey Unit Description to ensure improved tracking.
- 4. Section 7.2.2 Accuracy, of RSP-16.04 should be rewritten to provide usable accuracy analysis process. Interoffice Memorandum REVISION TO PRO-478-RSP-16.04, RADIOLOGICAL SURVEY/SAMPLE DATA ANALYSIS EDM-001-00 was written and concurred on to provide a usable accuracy analysis process.
- 5. Spreadsheets provided to perform statistical calculations.
- 6. Several forms have been generated to replace forms from RSP-16.02. RSP-16.02 should be revised to reflect this change/improvement.
- 7. Total number of data points is very conservative. Using MARSSIM guidance it can be shown that significantly less data points are statistically acceptable. See spreadsheets.
- 8. Survey maps need improvement. Methodology employed is one that was used prior to RSP-16.01 approval. Recommend scale maps with grid overlays or CAD drawing in the future. See B779 Closure Project maps as examples.
- 9. See data sheets for corrected data.

Prepared by: 6,01-7028, 3-10-20

PRO-478-RSP-16.04 **REVISION 0** PAGE 22

(09/30/99)

# APPENDIX A Page 1 of 1

# **DQA** Checklist

		Performed By	Comments
§	Item	(Initials/Date)	(number & attach)
7.1	Data Verification	RM /3-13-00	
7.1[1]	DQOs implemented as prescribed	pm/3-13-00	
7.1[2]	All required supporting documents present	enu/3-13.00	
7.1[3]	Outliers / anomalies addressed	12mm / 3-13-00	
7.2	Data Validation	Equi 3-13-00	
7.2.1	Survey/Sample Precision		see spreadsheets
7.2.2	Survey Accuracy	10mm/3-13-00	see spreadsheets
	Sample Accuracy	M/A	no samples taken
7.2.3	Data Representative of survey unit	12mm/3-13-00	/
7.2.4	Survey/Sample/Scan Completeness	150mm / 3-13-00	100%
7.2.5	Data Comparable to related units	13-13-00	yes group B
7.3	DQA complete	DAM / 3-13-00	yes, Group B see spread sheets
7.3[3]	Any measurement > DCGL _w ?	1 .	N/A
7.3[4]	Mean > DCGL _w	N/A	N/R
7.3.[5]	Any measurement > maximum DCGL	NA	N/A
7.4	Evaluation	N/A	N/A
7.4[1][D]	New survey package (if req'd)	NA	N/A
7.4[1][E]	Radiological improvement report (if req'd)	NJA	NA
7.4[2]	Verify documentation complete		NA
8.0	Peer review		NONE
	Package submitted to project management	1440 B. 150	
9.1	Records to Records Center  (copy to project files)	Dm/8-37-00	

NOTE: The DQA Flow Chart (Appendix B) is provided as aid to illustrate the DQA process when performing survey/sample data analysis activities describe in this procedure.



# (dpm/100 cm²) Alpha Removable Activity

Survey Area - N/A	Survey Unit - Exterior	Building - T439A	Survey Unit Description - Roof and walls of Trailer T439A
1.2	-1.5	-1.2	1.2

	Removable Contamination Data Sheet	DCGL _w 20 dpm/100 cm ²
!	0.0	3.3

# (dpm/100 cm²) Beta Removable Activity

Survey Area - N/A	Survey Unit - Exterior	Building - T439A
54	10	30

Building - 1439A Survey Unit Description - Roof and walls of Trailer T439A Removable Contamination Data Sheet 

 $1000~\mathrm{dpm/100~cm}^2$ DCGL_W

-0.6 dpm/100 cm² 22.7 dpm/100 cm² Mean

Std Dev

No measurement exceeds the DCGL_w

14.4 -37.6 -3.6 -27.6 -17.6 -55.6 -18.4

# Total Surface Activity (dpm/100 cm²) Alpha ი დ

	a - N/A	t - Exterior	-439A	Survey Unit Description - Roof and walls of Trailer T439A	Total Surface Activity Data Sheet	100 dpm/100 cm ²	. 78	17.1 dpm/100 cm ²	18.4 dpm/100 cm ²		No measurement exceeds the DCGL _w	No measurement exceeds 75% of the the ${ t DCGL_W}$		
	Survey Area - N/A	Survey Unit - Exterior	Building - T439A	Survey Uni	Total Surfa	DCGLw	<b>=</b>	Mean	Std Dev		No measur	No measur		Precision
d/ > >	o	φ	-21	7	20	14	27	14	30	15	-12	15	19	-24

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19       Location       C ₁ C ₂ C ₁ -C ₂ )/2       R         22       M-1S       27       25       2       26       7.69         16       B-1N       -12       25       -37       6.5       -569         -3       B-2W       30       -3       33       13.5       244         34       H-1R       53       0       53       26.5       2         40       N-4R       28       -3       31       12.5         40       Precision (RPD) is out of specification due to low value survey measurements         53       measurements         25       Recalculated N	<b>C</b> ₂ 25 25 -3 0 -3 it of specificat	<b>C₁-C₂</b> 2 -37 33 53 31 ion due to	(C ₁ +C ₂ )/2 26 6.5 13.5 12.5 12.5 low value sur	26 7.692308 6.5 -569.2308 13.5 244.4444 26.5 200 12.5 248 ue survey
$\Delta/\sigma_{\rm s} = ({\rm DCGL-LBGR})/\sigma_{\rm s}$	/a _s			

# Total Surface Activity (dpm/100 cm²) Beta

Survey Area - N/A	Survey Unit - Exterior	- T439A	Survey Unit Description - Roof and walls of Trailer T439A	Total Surface Activity Data Sheet	5000 dpm/100 cm ²	28	122.5 dpm/100 cm²	286.7 dpm/100 cm ²		No measurement exceeds the $DCGL_W$	No measurement exceeds 75% of the the $$ DCGL $_{ m w}$	
Survey A	Survey U	Building - T439A	Survey U	Total Sur	DCGLW	_	Mean	Std Dev		No meas	No meas	
165	221	-13	111	-10	121	17	121	-46	145	46	-82	-164

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-164						
323	Precision					
-322						
-211	Location	ပ်	ပ	$\mathcal{C}_1$ - $\mathcal{C}_2$	$(C_{1+}C_2)/2$	RPD
-329	M-1S	17	-78	92	-30.5	-30.5 -311.4754
-164	B-1N	46	88	-45	29	-62.68657
-346	B-2W	-46	-114	68	-80	-85
190	H-1R	685	27	658	356	356 184.8315
628	N-4R	180	-30	210	75	280
601						
344	Precision (R	PD) is out	of specifica	ition due to	Precision (RPD) is out of specification due to low value survey	ırvey
685	measurements	nts				
247						
418	Recalculated N	N P				
180						
554	$\Delta/\sigma_{\rm s} = ({\rm DCGL\text{-}LBGR})/\sigma_{\rm s}$	L-LBGR)/c	s			

# Recalculated N

Survey Area: NA	Survey Unit: ExTERIOR	Building: TUSGA
Survey Unit Description	on Zoof & Whites of Th	Lucea Tusan

# SURVEY SIGNATURE SHEET

# Removable /Total Surface Activity Performed By

A. CHRISTOPHEZ VIGIL RCT Printed Name		(46/16)	716500
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P. CHUTCHAI  RCT Printed Name		f. thill	2-7-00
RCT Printed Name		RCT Signature	Date
R. Karey		akill-1	
RCT Printed Name		RCT Signature	2/7/60 Date
P. CHITTUM		Relation	23,65500
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	Charles Coloring Consultation	<i>y</i>	
RCT Printed Name	Employee #	RCT Signature	Date
			LDate

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Employee #	RCT Signature	Date
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Employee #	RCT Signature	Date
Employee #	RCT Signature	Date
		Employee # RCT Signature  Employee # RCT Signature

Survey Reviewed By

RCT Foreman Printed Name RCT Foreman Signature Date

Survey Area: NA Survey Unit: EXTERIOR Building: TU39A

Survey Unit Description Rear Function TU39A

# **INSTRUMENT DATA SHEET**

# **Removable Contamination Survey Instrument Data**

Manufacturer	EBERLINE	EBERILE	Exerce	ERCHUNE	EBERCHE	Estant
Model	SKY	Sikey	5.164	3C.4	SKH	5004
Inst. ID #	1	2	3	4	5	6
Serial #	814	1407	1411	8CGZO	961	1171
Cal. Due Date	2-11-00	6.15-60	649.00	4.14.00	6.21.00	7/11/00
Analysis Date	Bresco	5 TOBCO	EFERCO	£≈800_	28480	28.550
Instrument Bkg and 10-min count time	0.1 0	0.5	04	405	0.3	0.2
Instrument Eff (%)	33/5 32	33/5	33.5	25	33	33
Instrument MDA 2-min count time	6.5	9.5	8.9	7899	E, 5	7.5
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# **Total Surface Activity Instrument Data**

nufactur	er	N.E.	Tech.	Ñ.E.	Tech.	N.E.	Tech.	ان:	ag v s " Karis	Ŋ	5						
Model		Electra		Electra Electra		Electra		CUCCTRA		a ELECTRA							
Inst. ID#		7		1262	8 1367		9	10		10		10		1	1	1	2 /
Serial # / P	robe #	2518	1956	1367	12624	2316	1921	1547	1432	2385	1931						
Cal. Due D	ate	5-3	CC	5-3	000	8.0	13.00	579	1.00	6.1	4.00	<u>\</u>	4.4				
Survey Dat	е	Tite	300	76	<b>33</b> 00	716	BOO	1518	300	2310	SCO.		1 3				
Alpha Bkg 90-sec pm count time	Beta Bkg 90-sec cpm count time	2.7	403	4.0	341	3.3	38e	2.0	465	<b>45</b> )	526						
Alpha Eff (%)	Beta Eff (%)	22.35	30.36	21.55	29,81	19.93	29.66	21.22	10.72	21.49	29.94						
Alpha MDA 90-sec Apm count time	Beta MDA 90-sec Apro- count time	34	257	44	256	44	256	34	273	37	291						

Page 2_ of 1

3-5/7



Survey Area: Survey Unit: Experied Building: THE Survey Unit Description Acce + Williams of TRANSCETUS

# **INSTRUMENT DATA SHEET**

# **Removable Contamination Survey Instrument Data**

Manufacturer	EBELLINE	GREACHE				
Model	BC-4	BC-4				And the second second
Inst. ID#	13 1- 100	14 2 30800	3	4	5	6
Serial #	BC961	865			1	
Cal. Due Date	6.27.00	7.12.00			M. J.	
Analysis Date	281660	28MGC			-A.	
Instrument Bkg pm 10-min count time	42.4	40.9		and the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of t		
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# **Total Surface Activity Instrument Data**

ufacturer		N.E. T	ech.	N.E.	Tech.	N.E.	Tech.						
Model		Elec	tra	Ele	ctra	Ele	ctra						
Inst. ID#		7			8		9	10	3	1	1	1	2
Serial # / Probe #								N					
Cal. Due Date							described which	P	<b>k</b>				
Survey Date							and the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second s						
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Page <u>3</u> of <u>11</u>

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kage ID:2000-01

Building: T439A Survey Unit: Exterior

South Wall North Wall Roof West Wall 0 0 0 z **v** 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 z S Z Z エ ス A B ¥ С н В 7 7 ー エ り SCON LOCATIONS I ග East Wall ш ட ш **T439A Exterior** ш ш Ω Ω Ω ပ O ပ O Ω Ω ω Ω ⋖ ⋖ က 7 7

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T Initials/Date: / 2/7/	o RCT Initials/I	Date: NA		RCT Initials/Dat	e: NA
Fer to the Final Survey NE Electra					
Legend: "R"-Roof, "	W" – West Wall, "S	" – South Wall,	"E" – East	Wall, "N" - North	h Wall
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* Designates corner closest to A-1 point of reference Results/Comments:

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Electra alpha scans were performed at the locations detailed on the survey map(s). All required accessible areas were scanned. All initial scan results were <225 dpm/100cm², unless noted on the survey form.

Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the survey form.

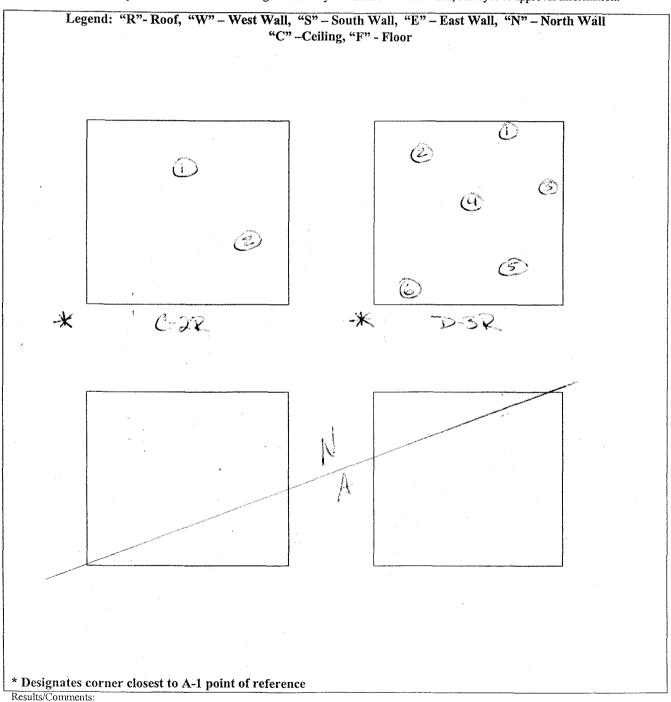
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Rev. 020900

*

Survey Area:	Survey Unit:	Building:
NIA	<u> CXTERIOR</u>	T439A
Survey Unit Description:	and a second distriction	and the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second s
Survey Unit Description:	+ WALLS OF TRAN	APPT LES
RCT Initials/Date: Re 2/3/00	RCT Initials/Date:	RCT Initials/Date:



Electra alpha scans were performed at the locations detailed on the survey map(s). All required accessible areas were scanned. All initial scan results were <225 dpm/100cm², unless noted on the survey form.

Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the survey form.

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Page Of M

Survey Area:	C	
NIA	Survey Unit:	Building: 7439A
10 11:5		1 13 1/3
Survey on Description. QC	HECKS	3
RCT Initials/Date: AP 2/32/05 1/15/03	RCT Initials/Date:	RCT Initials/Date: 1
Refer to the Final Survey NE Electra Scan & I	nvestigation Survey Form for instrumentation	, surveyor & approval information.
Legend: "R"- Roof, "W" - V	Vest Wall, "S" – South Wall, "E" – Ea	st Wall, "N" - North Wall
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* Designates corner closest to A-1 point	of reference	

Results/Comments:

Electra alpha scans were performed at the locations detailed on the survey map(s). All required accessible areas were scanned. All initial scan results were  $<225 \text{ dpm}/100\text{cm}^2$ , unless noted on the survey form.

Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the survey form.

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Page ____ of ___

Rev. 020900

# Final Survey NE Electra Scan & Investigation Survey Form (Continuation Sheet)

Survey	Area:	. 1/1		Survey Ur	nit:			Building:						
Survey	Unit De	it Description:							39A					
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Loc.	DOT		lectra DP-6 B	eta		Electra DP-6 Alpha								
· ID #	RCT ID#	Inst. ID#	Elevated Audible observed? "Y" or "N"	60-sec PAT (dpm/100cm2)	RCT ID#	Inst. ID#	4-sec Audible observed? "Y" or "N"	30-sec Static (gcpm)	90-sec PAT (dpm/100cm ² )					
B-2W1		17	N			7	V	720						
B-ZwiZ		17	N			7	V	16						
B-2W3		7	J				V.	i å						
B 224		7.	N			7	¥	18						
3-2W5		-7	N			7.	V	16						
132WC		-7	N			7	Y	8						
B 2W7		_7_	Ŋ			7	Y	16						
8-2WE		7	2			7	Y	18	100					
B 249		7	2			7.	Y	10	7					
C-2W1		7	2			7	Y	14	All					
C-20,2		7	N			-7	Y	6	10/2					
C2W3		7	ا در	NA I		.7	Y	8						
C-264		7	<i>\rightarrow</i>			7	Y	16						
CZWS		7	N			7	Y	6						
8-12		-7	N			7	N							
C-12		7	. N			7	N	NA						
G-12		7	N			-7	N							
L-2N1		7	N			7	У	. 6						
M-M		7	N.			7	N	N/A						
B-251		_~7	N			7	Y	14						
C-25		7	7				V							
D-15		7	N			52 T BACO.	N	N						
E-15		7	N			7	2							
M-15		7	N			.7	2							
CZRI		11	<u> </u>			11	4	2						
C-22-2		11	2 /	·		71	4	8						

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Rev. 020900

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Page Of I

N

# Final Survey NE Electra Scan & Investigation Survey Form (Connection Sites )

Survey	Area:										
		NIA		Survey Un	Survey Unit:				Building: TU39A		
Survey	Unit De	scription	7	· \.					107		
-		F	<b>€635 ←</b> lectra DP-6 B	WAUS OF	17BA	に出	7 4394				
Loc.	RCT							DP-6 Alpha			
ID#	ID#	Inst. ID#	Elevated Audible observed? "Y" or "N"	60-sec PAT (dpm/100cm2)	RCT ID#	Inst. ID#	4-sec Audible observed? "Y" or "N"	30-sec Static (gcpm)	90-sec PAT (dpm/100cm ² )		
D-3RI		11	J			11	7	15			
D-322		11	N			- Care	Y	12			
D-3723		11	N	N/			7	10	U/		
D-324		11	N			The Control	*~/	12	K		
0-385		11	N			í i	N. Carlotte	8			
D-326		11	N	<i>i</i>		A Comment		15			
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Survey Area: NA Survey Unit: EXTERIOR Building: TH39A

Survey Unit Description

Survey Unit Description

Total Surface Activity Data Sheet														
	mple ation	RCT	Inst	ID#	Survey co	ount time	LA		Gross	Count	Net c	ounts		ctivity 00cm2)
			α	β	α	β	α	β	α	β	α	β	α	β -
3-	25		7	7	90	90	7.3	456	9.3	486	2	50	9:	165
C	25		1	1	90	90	87	482	7.3	469	-1.4	67	1-6	221
5	15		7	.7	90	90	4.3	341	13x7°	7.27	-4.6	-4	-21	·-13
-ئ	15		9	9	90	90	6.0	550	7.3	383	1.3	33	1	111
工	25		9	9	90	90	4.7	598	87	395	4.0	~3	70	-10
L-	-ZS		9	9	90	90	4.3	353	12.0	369	2.7	36	+60,14	121
M-	15		9	· a	90	90	4.0	368	9.3	313	55	5	ES 3	· 1 ⁷
M-	25		G	G	90	90	9.3	380	120	416	27	36:	14 140 403	121
3-6			7	7	90	90	9.3	433	16.0	419	6.7	-14	30	-46
ري	$\sim$		7	-7	90	90	0.7	514	40	423	3.5	44	15	145
13-	N.		7	7	90	90	80	5-14	57.5	363	-2.7	14	-12	46
C-	と		7	7	90	90	4.7	370	80	353	3.3	25	15	-82
	21)		8.	F.	90	90	2.0	401	6.0	552	+4.0	-49	+19	-164
Gal			7	7	90	90	10.0	322	4.7	420	-53	48	-24	323
6-			8	₿.	90	90	1.3	399	4.0	503	3.3	-90	15	+322
A			8	4	90	90	1-3	404	53	346	40	-63	19	-211
K-			8	8	90	90	2.0	414	5.1	3:6	4.1	. 98	+22	~ 52G
L-	21		8	Ŝ	90	90	7.3	401	4.7	352	34	-49	16	-164
M-1	7		7	7	90	90	5.3	421	4:7	316	-0.6	-105	-3	346
C-2	22		11	1)	90	90	2.0	520	9.3	5 ⁸ 5	7.3	57	34	ોલિટ
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F-2	22		11	H I	90	90	27	3/49	11.3	579	6.6	الراغ ا	40	661
(2-3	32		11	11	90	90	2ಎ	382	<i>8-</i> 7	495	6:7	103	31	344
4-1	R		41	11	90	90	27	352	14.0	557	11.3	205	33	685
.I-3			11	il	90	90	3.3	445	6:1	519	5.4	74	25	247
14-2	ZK		11	11	90	90	33	727	0.51	3\$Z	6.7	125	51	418
N-1	412		1(	11	90	90	ر ا	791	16.0	545	4.0	54	28	180
	212		ìì	11	90	90	Ž,	312	8.7	53B	<i>8</i> 0	166	2,1	554
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1 '	<u>L</u> QC		ii	il	90	90	20	372	2.0	380	0_	ප	0 -3	2.1
W-4	PQC Not		11	11	90	90	4.7	604	4.0	परऽ	-0.7	-4	-3 Clocation	-30

Survey Area: N/A Survey Unit: Exterior Building: T439/A

Survey Unit Description People have be TRANCE T459/A

Sample -ocation	RCT ID#		t ID #	Gross ( (gc)		1	ounts om)	Removable Activity (dpm/100cm2)		
	المان المان	α	β	α	β	α	β	α	β	
B-25/		1	4	6.5	27	0.4	-13.5	12	-54	
C.25		2	4	0.0	36	· · · · · · · ·	- 6.5	1.5	10	
D-15		3	4	0.0	46	4.6.4	7.5	-1.2	30	
5-15		ì	4	0.5	446	0.4	5.5	1.2	7.2	
1-25		2	4	C.5	38	0	- 2.5	0	IC	
1-25		3	4	1.5	43	1.1	2.5	3.3	10	
11-15		î	4	0.5	વધ	0.4	3.5	1,2	14	
11-25		2	4	0.5	42		1.5	0	<u> </u>	
3.2W		3	4	0.5	વર્ડ	101	4.5	ڏ ٠٥٠	18	
2-ZW		ĺ	4	0.0	45	C.1	4.5	- C13	3.5	
13-1N		2	4	0.5	-14	0 .0-39	3.5	0	14	
C-1N		3_	4	C.6	36	1-6.84	4.5	1.2	<u>ځا</u>	
0.2 V		i	4	00	42	-01	1.5	-0.3	<u> </u>	
+1,0		2	4	* 0.0	-15	-0.5	4,5	1.5	31	
3-2,0		3_	4	0.5	<u> </u>	0.1	£ 5	C +3		
4-22		<u> </u>	4	0.0	45	~6.1	4.5	-0.3	18	
K-2N		2	4	<u>ک</u> .ن	43	-0.5	2.5	-1.5	10	
L-2N		3	4		47	- C.V	6.5	1.7	ŽĹ	
W-1N		1	4	0.0	40	-01	- 0.5	· In- (C) - S	- 2	
CZK		,	13	1.0	40.0	0.7	2.64	2.1	- 9.6	
13-312		۵	14	0.0	<u> </u>	- C- L	3.6	-0.6	14.4	
=-212		10 10	13	0.0	33.0	-6.5	4.4	-09 mi-2 500	~ 37,6	
C-31		<u>_</u>	14	0.C	<u> 40.0                                  </u>		-0.9	- C. L C. T. G.	- 3.4	
4-112		-2	13	0.0	\$\$°5		-6.9	2-0.9	-27.6	
I-32		<u>(</u>	14	0.5	36.5	0.3	- 4.4	0.9	17.(_	
K-2R		5	13	0.0	23.5	-613	-13.9	0.9	-52.0	
N-42		5	14	0.5	45.5	6.5	4.6	0,9	18.4	
2-2K		2_	13	05	30.5	2.2	-3.G	6.6	-15-16:	
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Survey Area: NA Survey Unit: Site of Building: T437A

Survey Unit Description

# **SURVEY SIGNATURE SHEET**

# Removable /Total Surface Activity Performed By

RCT Printed Name	Employee #	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date
	·		
RCT Printed Name	Employee #	RCT Signature	Date
	NA	1.	
RCT Printed Name	Employee #	RCT Signature	Date
	1		
RCT Printed Name	Employee #	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date

# **Quality Control Measurements Performed By**

	-		
LAWSON		mas	3-8-00
RCT Printed Name		RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date
NOT TIME WHILE	Employee	A Not digitation	Date
RCT Printed Name	Employee #	RCT Signature	Date
			•
RCT Printed Name	Employee #	RCT Signature	Date

# Survey Reviewed By

Ilos Worter	2 260		343.00
RCT Foreman Printed Name	Employee #	RCT Foreman Signature	Date

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Survey Area: NA Survey Unit: Extende Building: T439 A

Survey Unit Description

WALL QC:

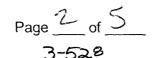
# **INSTRUMENT DATA SHEET**

# **Removable Contamination Survey Instrument Data**

Manufacturer						
Model						
Inst. ID #	1	2	3	4	5	6
Serial #	· · · · · ·					
Cal. Due Date						
Analysis Date						
Instrument Bkg opm 10-min count time Instrument Eff (%)			A			
Instrument MDA 2-min count time						

# **Total Surface Activity Instrument Data**

nufactur	er	N.E.	Tech.	N.E.	Tech.	N.E.	Tech.	T					
Model		Electra		Electra		Electra			•		<u> </u>		/
Inst. ID#			7	8		9		10		- 1	1	1	2
Serial # / P	robe #	1395	1368										
	Cal. Due Date		9-00	-				N					
Survey Dat	е	3-8	3:00				-		N				
Alpha Bkg 90-sec apm count time	Beta Bkg 90-sec count time	2.7	380										
Alpha Eff (%)	Beta Eff (%)	20.89	28.68						-				
Alpha MDA 90-sec of count time	Beta MDA 90-sec ♣ count time	38.5	264.5										·



Survey Area:	Survey Unit:	Building: T439A
Survey Unit Description:	ALL QC'S	
· · · · · · · · · · · · · · · · · · ·	RCT Initials/Date:	RCT Initials/Date:
Refer to the Final Survey NE Electra Scan & I	West Wall, "S" – South Wall, "E" –	
Dogona. R - Root, W - V	"C" -Ceiling, "F" - Floor	Last wall, "N" – North Wall
B-2W		
	\ \frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac}\fint}}}}}{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac}\frac{\frac{\frac}}}}}}{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac}\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac}\frac{\frac{\frac{\frac	<b>7</b> A
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		:

* Designates corner closest to A-1 point of reference Results/Comments:

Electra alpha scans were performed at the locations detailed on the survey map(s). All required accessible areas were scanned. All initial scan results were <225 dpm/100cm², unless noted on the survey form.

Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the survey form.



3-529

 $_{Page}$   $3_{of}$   $5_{of}$ 

Survey	Area:			Survey U	nit:		· · · · · · · · · · · · · · · · · · ·	Building:	Λ.			
Survey	Unit Des	NA			Survey Offic Exterior Building. 7439A							
Burvey	Omt Des	cription:	į	NALL QU	2, 0							
		El	ectra DP-6 Be	eta	Electra DP-6 Alpha							
Loc. ID#	RCT ID#	Inst. ID#	Elevated Audible observed? "Y" or "N"	60-sec PAT (dpm/100cm2)	RCT ID#	Inst. ID#	4-sec Audible observed? "Y" or "N"	30-sec Static (gcpm)	90-sec PAT (dpm/100cm ² )			
B-2W1		7	N	NA		7	У	10	NA			
M-15		7	N	NA		7	N	NA	NA			
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Page of S

Survey Area: NA Survey Unit: EXTERIOR Building: T439A

Survey Unit Description

WALL QC 5

Sample location	RCT ID#		ID#	Survey count time (sec)		LAB (cpm)		Gross Count (gcpm)		Net counts (cpm)		Net Activity (dpm/100cm2)	
		α	β	α	β	α	β	α	β	įα	β	α	β
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PINOC		7	7	90	90	0.7	327	10.0	510	9.3	183	44.5	638
S-ZWQC		7	7	90	90	2.0	344		466	6.0	122	287	425
N-IS QC		7	7	90	90	1.3	296	4.0	427	2.7	131	12.9	457
QC		T.	_ <u>r</u> _	90	90			Λ	T	- 6	1.31	10.1	<del></del>
QC	-			90	90		1-N	$\mathcal{H}$			<del> </del>	-	<del> </del>

# SURVEY PACKAGE COVER SHEET

Package ID: 2000-01	<b>Building:</b> T439D					
Survey Area: Not Applicable	Survey Unit: Interior					
<b>Survey Unit Description:</b> This trailer was placed on site 1/85, it's located north of Building 440, and immediately west of Building 439. The trailer size is 24' x 64' x 12' high, it's a double wide module.						
Building Information:						
Survey Type: Reconnaissance Level Characterization S	Survey □ Final Status Survey <b>X</b>					
Building Type: Type 1 X Type 2 □ Type 3 □	,					
Classification: Class 1  Class 2  Class 3 X Unk	nown □					
Contaminants of Concern: Plutonium X Uranium X (	Other 🗆					
Justification for Classification: This facility h		ngical				
contamination.	as no known instary or radiore	, B 412				
Special Support Requirements: Ladder, manl	ift, scaffolding, and/or remote	reach tools and				
instrumentation may be required for surveying	•					
upper walls and ceilings on the interior and upp						
Special Safety Precautions: Access to overhe	ad areas may require additiona	ıl controls. Use				
caution when working in overheads.						
Isolation Controls:						
Level 1 □ Level 2 X N/A □						
I shaling Degrainers and The leasting about	in a donat man and his common an	a manfarma ad vvill				
<b>Labeling Requirements:</b> The location where f be marked using a sticker or a marker and then		_				
be marked using a sticker of a marker and then	cross-referenced to the survey	resurts.				
Survey Package Implementation:						
	<b>^ ^</b>					
RICK ROBERTS	<del></del>					
		1/22/20				
<del></del>	diological Engineer Signature  /A	Date N/A				
	FS Manager Signature	Date				
H. B. ESTABROOKS	1 Strianger Signature	Date				
	SS Manager Signature	Date				
Survey Package Closure:		Duto				
RICK ROBERTS (No. 1)						
	SS Radiological Engineer Signature	Date				
NOT APPLICABLE	/A	N/A				
/	FS Manager Signature	Date				
J. B. ESTABBOOKS	Torroll Prenx	8/3/00				
RESS Manager Printed Name	SS Manager Signature	Date				

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# SURVEY PACKAGE TRACKING FORM

Package ID: 2000-01	The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s	Building: T439D					
Survey Area: Not Applica	able	Survey Unit: Interior					
Initiator/ Date	Release Date	Validation Date	Closure Date				
AMP 1/30/50	1/01/00	120 8 12 10	1000 5 /2 /30				
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# SURVEY PACKAGE CORRECTION/CHANGE HISTORY FORM

Package ID: 2	000-01	Building: T439D				
Survey Area:	Not Applicable	Survey Unit: Inter	ior			
Change #	Description	MONTHUR E.A. (COMMENCED EVEL E	Initiator/ Date	PRE		
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	Port of the second			,		
2	Desiry Salar per	Line 18 C. Janes C.	Start shies	ANG.		
	Recorded Line					
3	Corrected Scan requireme	ot .	Edu / 6-20-00			
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# INITIAL SURVEY PACKAGE DESIGN FORM

Package ID: 200	0-01	Building: T439D	Type: 1				
Survey Area: No	t Applicable	Survey Unit: Inte	erior	Area (m ² ): 370			
			n site 1/85, it's lo ler size is 24' x 6				
Survey Type:			Classification:				
RLC Survey □	FSS X		Class 1  Class:	2 Class 3 X Un	known 🗆		
Random/Uniform Surface Activity Measurements	Biased Surface Activity Measurements	Equipment Surface Activity Measurements	Media Samples	Volumetric Samples	Surface Activity Scans		
28	0	0	0	0	Biased		
Building:		Туре:		<u> </u>			
Survey Unit:			Area (m²):				
Survey Unit Desc	eription:				·		
Survey Type:	Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction of the Contraction o	- Acceptance	Classification:				
RLC Survey □	FSS □		Class 1 □ Class 2 □ Class 3 □ Unknown □				
Random/Uniform Surface Activity Measurements	Biased Surface Activity Measurements	Equipment Surface Activity Measurements	Media Samples	Volumetric Samples	Surface Activity Scans		
		AND PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE P					
Building:		Туре:		Survey Area:			
Survey Unit:			Area (m²):				
Survey Unit Desc	eription:						
Survey Type:			Classification:				
RLC Survey □	FSS □		Class 1 □ Class 2 □ Class 3 □ Unknown □				
Random/Uniform Surface Activity Measurements	Biased Surface Activity Measurements	Equipment Surface Activity Measurements	Media Samples	Volumetric Samples	Surface Activity Scans		
					·		
Building:	- Total fire distance where	Type:		Survey Area:			
Survey Unit:	A STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STATE OF THE STA		Area (m²):				
Survey Unit Desc	cription:						
Survey Type:			Classification:	***	***************************************		
RLC Survey □	FSS □		Class 1 □ Class	2 □ Class 3 □ U	Jnknown 🗆		
Random/Uniform Surface Activity Measurements	Biased Surface Activity Measurements	Equipment Surface Activity Measurements	Media Samples	Volumetric Samples	Surface Activity Scans		

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# SURVEY PACKAGE SURVEY/SAMPLING INSTRUCTIONS FORM

Package ID: 2000-01	Building: T439D
Survey Area: Not Applicable	Survey Unit: Interior

**Survey Unit Description:** This trailer was placed on site 1/85, it's located north of Building 440, and immediately west of Building 439. The trailer size is 24' x 64' x 12' high, it's a double wide module.

	Minimum Survey/Sampling Measure	ment Requirements					
Measurement	Number and Type	Comments					
Surface Activity	INTERIOR FLOORS/WALLS/CEILINGS:	SEE NOTE 1					
Measurements	28 surveys will be taken per the attached survey	SEE NOTE 2					
	map.	SEE NOTE 3					
		SEE NOTE 4					
	QUALITY ASSURANCE SURVEYS	SEE NOTE 5					
		SEE NOTE 6					
	INTERIOR FLOORS/WALLS/CEILINGS:						
	5 surveys will be taken per direction from radiological engineering.						
•							

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# SURVEY PACKAGE SURVEY/SAMPLING INSTRUCTIONS FORM (cont)

Package ID: 2000-01	Building: T439D
Survey Area: Not Applicable	Survey Unit: Interior

**Survey Unit Description:** This trailer was placed on site 1/85, it's located north of Building 440, and immediately west of Building 439. The trailer size is 24' x 64' x 12' high, it's a double wide module.

# Minimum Survey/Sampling Measurement Requirements **Comments** Measurement **Number and Type INTERIOR FLOORS: SEE NOTE 1 Surface Scanning** Biased surface scans will be performed on the **SEE NOTE 2** interior floors in areas where contamination **SEE NOTE 3** would accumulate. This includes seams, cracks, corners, doorways and boundaries between **SEE NOTE 4** different types of flooring. **SEE NOTE 5 SEE NOTE 6** No more than 10% of the total area will be scanned. QUALITY ASSURANCE SCAN SURVEYS **INTERIOR FLOORS:** 5 percent of total number of scans or of total scan area will be taken per direction from radiological engineering. NONE Media Samples Volumetric **NONE** Samples Isotopic Gamma **NONE** Scans

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# SURVEY PACKAGE SURVEY/SAMPLING INSTRUCTIONS FORM (cont)

Package ID: 2000-01	Building: T439D
Survey Area: Not Applicable	Survey Unit: Interior

**Survey Unit Description:** This trailer was placed on site 1/85, it's located north of Building 440, and immediately west of Building 439. The trailer size is 24' x 64' x 12' high, it's a double wide module.

### Survey/Sampling Instructions

**NOTE 1:** Surveys of the area were established on a random basis and are delineated on page 14, RSFORMS-16.01-10, of the survey package. Survey points will be taken in the middle of the survey grid and will be cross-referenced to a common reference point in the trailer. These surveys will be taken in accordance with PRO-476-RSP-16.02, "Radiological Surveys of Surfaces and Structures", for the following:

- Total alpha contamination
- Total beta contamination
- Removable alpha contamination
- Removable beta contamination
- Biased scan measurements for alpha then beta/gamma contamination

For total alpha and total beta surveys, the LAB will be determined at each survey point by placing a piece of plywood over the probe face that is at least 0.5 inch thick and performing an alpha count and a beta count. The material background for both total alpha surveys and total beta surveys will be considered to be 0 dpm/100 cm².

Alpha scanning using the NE Electra for the DP6-BD and DP8A probes will be in accordance with Letter SJR-001-99, "Alpha Scan Rates for Building 779 Cluster Final Status Surveys," and Letter SJR-004-99, "Performance of Scan Surveys with the Bicron/NE DP8 Probe for Building 779 Cluster Final Status Surveys," respectively. Beta scanning using the NE Electra.

**NOTE 2:** Quality assurance prescribed surveys of the area will be taken in accordance with PRO-476-RSP-16.02, "Radiological Surveys of Surfaces and Structures" per the requirements in PRO-479-RSP-16.05, "Radiological Survey/Sample Quality Control," for the following:

- Direct alpha contamination
- Direct beta contamination
- Scan measurements for alpha then beta/gamma contamination

The location of quality assurance surveys will be delineated by radiological engineering after the initial surveys are performed. Quality assurance surveys will be performed by a different individual than performed the original survey.

**NOTE 3:** The RCT shall document the results for all surveys performed and maintain with the survey instructions package.

**NOTE 4:** All survey instruments will be performance checked both prior to and after performing surveys, and both performance checks will be documented. Contact Radiological Engineering for direction if an instrument fails the post performance check.

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# SURVEY PACKAGE SURVEY/SAMPLING INSTRUCTIONS FORM (cont)

Package ID: 2000-01	Building: T439D
Survey Area: Not Applicable	Survey Unit: Interior

Survey Unit Description: This trailer was placed on site 1/85, it's located north of Building 440, and immediately west of Building 439. The trailer size is 24' x 64' x 12' high, it's a double wide module.

## **Survey/Sampling Instructions**

**NOTE 5:** The following MDA requirements are a goal for each survey instrument. The MDA shall not exceed the Investigation Levels outlined in NOTE 6.

- 10 dpm/100 cm² for removable alpha contamination
- 50 dpm/100 cm² for total alpha contamination
- 500 dpm/100 cm² for removable beta contamination
- 2500 dpm/100 cm² for total beta contamination
- 150 dpm/100 cm² for alpha scan
- 7500 dpm/100 cm² for beta scan

**NOTE 6:** If a survey result exceeds the following investigation levels, contact radiological engineering before proceeding:

- 15 dpm/100 cm² for removable alpha contamination
- 75 dpm/100 cm² for total alpha contamination
- 750 dpm/100 cm² for removable beta contamination
- 3750 dpm/100 cm² for total beta contamination
- 225 dpm/100 cm² for alpha scan
- 11250 dpm/100 cm² for beta scan

An investigation will be performed into the elevated results.

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Survey Area: NOT APPLICABLE Survey Unit: INTERIOR Building: T439D  Survey Unit Description: This trailer was placed on site 1/85, it's located north of Building 440, and immediately west of Building 439. The trailer size is 24' x 64' x 12' high, it's a double wide module.  Total Surface Instrument Data  Date / Time
Survey Unit Description: This trailer was placed on site 1/85, it's located north of Building 440, and immediately west of Building 439. The trailer size is 24' x 64' x 12' high, it's a double wide module.  Total Surface Instrument Data  Date / Time Inst. No.: α Probe No.:  α Inst. No.: β,γ Probe No.:
west of Building 439. The trailer size is 24' x 64' x 12' high, it's a double wide module.  Total Surface Instrument Data  Date / Time
west of Building 439. The trailer size is 24' x 64' x 12' high, it's a double wide module.  Total Surface Instrument Data  Date / Time
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Inst. No.: $\beta, \gamma$ Probe No.: $\beta, \gamma$
$\beta,\gamma$
Efficiency (%): $\alpha$ $\beta \gamma$ (cpm/dpm) Mat, Area Bkgd: $\alpha$ $\beta \gamma$ (dpm/100 cm ² )
2.
MDC (dpm/100 cm ² ): $\alpha$
Cal. Due Date: Survey Type: Al pha Be ta _
Survey Type. Alpha Beta
**Net Activity
Sample Location / Gross Counts LAB Bkgd Net Counts *Gross Activity Gross Activity - University Counts (cpm) (cpm) (cpm) (dpm/100 cm ² ) Mat. Area Bkgd.
Number Description (cpm) (cpm) (cpm) (dpm/100 cm ² ) Mat. Area Bkgd. (dpm/100 cm ² )
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$
* (Gross Cts - LAB) $\div$ (Eff.) $\times$ CF = Gross Activity
**Gross Activity - Mat. Bkg = Net Activity  RCT Printed Name   Employee #   RCT Signature   Date
Continue Traine
RCT Technical Supervisor Printed Name Employee # RCT Technical Supervisor Signature Date

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		RE	MOVABLE S	URFACE AC	TIVITY DAT	A SURVE	Y FORM			
Survey A APPLIC	rea: NOT ABLE	S	Survey Unit: IN	TERIOR		Buildi	ng: T439D		·	
Survey U	nit Description: ately west of B	This t	railer was pla	ced on site 1	/85, it's loca	ated north	of Buildin	ng 440	), and	1.
minicula	icly west of D	unum	g 439. The u	aner Size is 2	4 X 04 X 1.	z mgn, n	s a double	wide	moau	ie.
			S	mear Survey l	instrument D	ata				
Count I	Date / Time:			Droha N	Io ·					
Inst. Et	Count Date / Time:									
MDC (	$dpm/100 cm^2$ ):		α Ρ	Rv Inst Rk	G· a	R	v	(cpn	1)	
Cal. Di	dpm/100 cm ² ): ne Date:			Survey	Type: Alph	<u> а</u>	Beta-Gamr	na	<u>.,</u>	
					Survey Data					
Swipe	Location /	C	Comments	Gross (	1		Counts	Removable Activity *		
Number	Description			срі	m	Cpm		$(dpm/100 cm^2)$		100 cm ⁻ )
				α	βγ	α	βγ		χ	βγ
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			<u> </u>							
			<del> </del>							
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		-				····				
										· · · · · ·
			* (GROS	S Cts - Inst. Bl	$(g) \div (Eff.) = A$	ACTIVITY	1			
RCT Printed N	ame		Employee #		RCT Signature				Date	
RCT Technical Supervisor Printed Name Employee #			Employee #		RCT Technical So	upervisor Signatur	re		Date	4.410-00-1

550

3-541 198/247 Ro

	SURF	ACE SCANNI	NG DATA	SHEET	
Survey Area: NOT A	PPLICABLE	Survey Unit: INTER	IOR	Building: T439D	
Survey Unit Descripti	ion: This trailer	was placed on site 1/	85, it's located n	orth of Building 440	, and
minediately west c	of Building 439.	The trailer size is 24	1 X 64 X 12 nigr	i, it's a double wide i	module.
Date / Time:		Scan Instru	nent Data		
Inst. No.:		Probe No.:			
Cal. Due Date:		Survey Type:	Alpha Beta-Ga	amma	
	_	Scan Surv	ey Data	_	
Sample Number	Location Description	• • • • • • • • • • • • • • • • • • •	omments	Sca (dpm/10	
				α*	β,γ*
		and the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of t		_	
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RCT Printed Name	Empl	oyee #	RCT Signature	<u> </u>	Date
RCT Technical Supervisor Printed	Name Empl	oyee#	RCT Technical Supervisor S	Signature	Date

3-542

551

199/242 RO

^{*} If an elevated count rate or a sustained audible increase in the count rate is observed during the scan survey, OR the rate meter alarm sounds, THEN: Scan the immediate vicinity to determine the bounds of the elevated activity, and take a "Total Surface Activity" measurement and record. Mark the location of most elevated activity on the surface with a self-adhesive label or equivalent, ensuring that the marking is not applied directly over the point of interest. Further analysis is required by RS Supervision.

# SURVEY PACKAGE CALCULATION WORKSHEET

Packa	<b>ige ID:</b> 2000-01	<b>Building:</b> T439D	
Surve	y Area: Not Applicable	Survey Unit: Interior	
440, a		ed on site 1/85, it's located north of Building e trailer size is 24' x 64' x 12' high, it's a double	
X To	tal Surface Activity	☐ Media Surface Activity	
X Re	movable Surface Activity	□ Volumetric Surface Activity	
Step 1:	Calculate the relative shift $\Delta/\sigma_s$ . $\Delta/\sigma_s = (DCGL\text{-}LBGR)/\sigma_s$ $\Delta/\sigma_s = 1.0$		
	where: A value of 1.0 was chosen since no survey data is use of 1.0 maximizes the number of surveys requ	is available and $\Delta/\sigma_s$ may vary between 1.0 and 3.0. The uired.	
Step 2: Determine Sign p using the calculated relative shift and Table 7-1. Sign p is the estimated probability that a random measurement from the survey unit will be less than the DCGL $_{\rm w}$ when the survey unit median is actually at the LBGR. Sign p = 0.841345			
Step 3:		and $Z_{1-\beta}$ and the selected decision error levels $\alpha$ and $\beta$ . 05 and 0.05 respectively. This yields a $Z_{1-\alpha}$ and $Z_{1-\beta}$	
Step 4:	Calculate Number of Data Points (N) for Sign T	est using the following equation:	
	$N = \frac{(Z_{1-\alpha} + Z_{1-\beta})^2}{4(Sign  p - 0.5)^2} = 23.22$		
Step 5:	Increase the number of data points by 20% to en possible data losses. $23.22*1.2 = 27.86$	sure sufficient power of the tests and to allow for	
Conclus	sion:		
A total	of 28 data points will be needed to satisfy MARS	SIM statistical requirements.	

RICK ROBERTS

Project RE Printed Name

Date

H.B. ESTABROOKS

RESS RE Printed Name

RESS RE Signature

Date

Rev. 9/99

# SURVEY PACKAGE SURVEY MAP

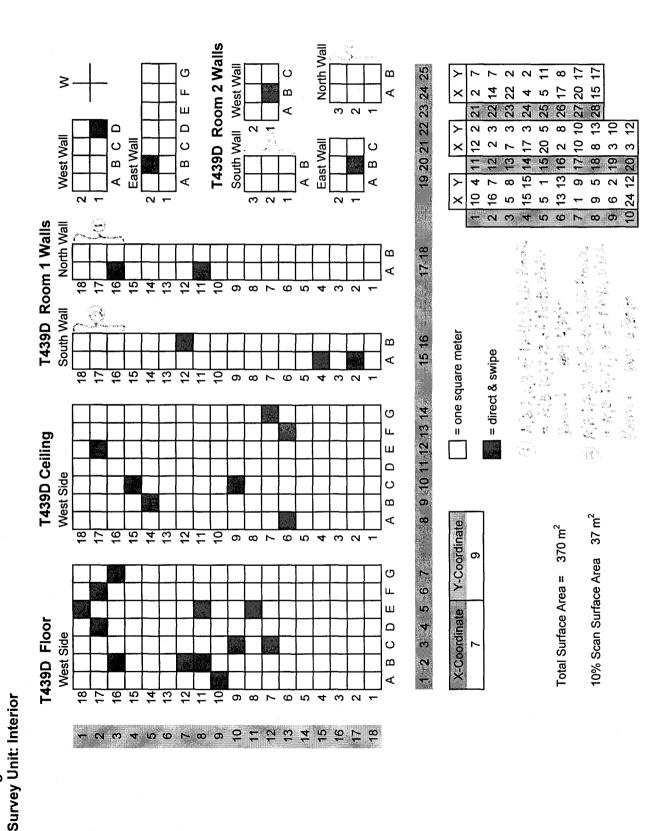
Package ID: 2000-01	Building: T439D
Survey Area: Not Applicable	Survey Unit: Interior
<b>Survey Unit Description:</b> This trailer was placed and immediately west of Building 439. The trai module.	on site 1/85, it's located north of Building 440, ler size is 24' x 64' x 12' high, it's a double wide
Floor Area (m ² ): 126	Total Area (m ² ): 370
SEE ATTACHED SURVEY MAP	

Rev. 9/99

653

3-544 201/242 RO

Package ID: 2000-01 Building: T439D



70

202/242 AD

# SURVEY PACKAGE VALIDATION CHECKLIST FORM

Package ID: 2000-01	Building: T439D	
Survey Area: Not Applicable	Survey Unit: Interior	
Survey Type: Reconnaissance Level Characteriza	tion Survey  Final Status Surve	ey X
All Documentation Reviewed for Completion	RCT Supervisor	PRE
Scan Surveys	N	EM
Total Activity Surveys	- V	Du
Exposure Rate Surveys	NA	NA
Removable Surveys	N	EMY
Media Samples	NA	NA
Volumetric Samples	NA	NA
All Surveys and Samples Accounted For	RCT Supervisor	PRE
Scan Surveys	N	EOM
Total Activity Surveys	N	EMI
Exposure Rate Surveys	NA	NA
Removable Surveys	N	ROW
Media Samples	NA	M
Volumetric Samples	NA	NA
Comments:	and the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second s	·
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RON WARREL		6-6-6-6
RCT Supervisor Printed Name  RICK ROBERTS	T Supervisor Signature	Date
BOX DIMPRAMBY	Z (V / // /	6-12-00
Project RE Printed Name  H. B. ESTABROOKS	ject RE Signature	Date
TW Mahattey	W John A	2/8-3-00
RESS Manager Printed Name	S Manager Signature	Date

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203/242 pe

3-546

Survey Area:

N/A

**Survey Unit:** 

Interior

**Building:** 

T439D

**Survey Unit Description:** 

Floors, walls, and ceilings of Trailer T439D

## 8. POST-PERFORMANCE ACTIVITIES

## 8.1 Documentation

Reviewed the above mentioned Survey Package and associated measurement data in accordance with PRO-478RSP-16.04, Radiological Survey/Sample Data Analysis. The following items are noted:

- 1. Various notes are provided on the Survey Package DQA Checklist. See DQA Checklist.
- 2. Various notes are provided within the Survey Package. See Survey Package.
- 3. DQA Checklist should have location to input Survey Area, Survey Unit, Building and Survey Unit Description to ensure improved tracking.
- 4. Section 7.2.2 Accuracy, of RSP-16.04 should be rewritten to provide usable accuracy analysis process. Interoffice Memorandum REVISION TO PRO-478-RSP-16.04, RADIOLOGICAL SURVEY/SAMPLE DATA ANALYSIS EDM-001-00 was written and concurred on to provide a usable accuracy analysis process.
- 5. Spreadsheets provided to perform statistical calculations.
- 6. Several forms have been generated to replace forms from RSP-16.02. RSP-16.02 should be revised to reflect this change/improvement.
- 7. Total number of data points is very conservative. Using MARSSIM guidance it can be shown that significantly less data points are statistically acceptable. See spreadsheets.
- 8. Survey maps need improvement. Methodology employed is one that was used prior to RSP-16.01 approval. Recommend scale maps with grid overlays or CAD drawing in the future. See B779 Closure Project maps as examples.
- 9. See data sheets for corrected data.
- 10. Measurement location A-1N = A-16N due to map overlap. See Survey Package.

Prepuel by: 4, 017 19 18-2-00

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# APPENDIX A

Page 1 of 1

# **DQA** Checklist

§	Item	Performed By (Initials/Date)	Comments (number % extends)
7.1		(Initials/Date)	(number & attach)
	Data Verification	Alle Bright	
7.1[1]	DQOs implemented as prescribed		
7.1[2]	All required supporting documents present	1000 3 - 3 - 3	
7.1[3]	Outliers / anomalies addressed	And Belletin	3173
7.2	Data Validation		
7.2.1	Survey/Sample Precision	B 13-2-32	Ger sy and sheets
7.2.2	Survey Accuracy	1001 (2000)	
	Sample Accuracy	14 /A-	The germanian Suntains
7.2.3	Data Representative of survey unit	<b>超额</b> () (6-52-55	,
7.2.4	Survey/Sample/Scan Completeness	1901 3 - 2 - 3 T	\$\$\$\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
7.2.5	Data Comparable to related units	ESS 3-4-30	Species B
7.3	DQA complete	18 1 3 th 18	Gen regressed Annals
7.3[3]	Any measurement > DCGL _w ?	All free to	
7.3[4]	Mean > DCGL _w	N/A	Mile
7.3.[5]	Any measurement > maximum DCGL	pis.	16/16
7.4	Evaluation	11/4	Ni/he
7.4[1][D]	New survey package (if req'd)	Mide	MA
7.4[1][E]	Radiological improvement report (if req'd)	The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s	12/16
7.4[2]	Verify documentation complete	A/A	N/A
8.0	Peer review	& 4/12/00	none
	Package submitted to project management		
9.1	Records to Records Center (copy to project files)	Em 8-22-00	

NOTE: The DQA Flow Chart (Appendix B) is provided as aid to illustrate the DQA process when performing survey/sample data analysis activities describe in this procedure.





# (dpm/100 cm²) Alpha Removable Activity

_	
•	-
Area	11.24
Survey	

Survey Unit - Interior Building - T439D

Survey Unit Description - Floors, walls and ceilings of Trailer T439D

Removable Contamination Data Sheet

20 dpm/100 cm² 28

 $0.7 \text{ dpm/100 cm}^2$   $1.6 \text{ dpm/100 cm}^2$ 

-0.6

DCGLW

6.0-

2.4 0.6 0.9

Std Dev Mean

No measurement exceeds the DCGL_W

0.6

6.0

0.0 0.0 0.0 0.0 0.0

0.0 0.0 0.0 0.9 3.6

Removable Activity (dpm/100 cm²) Beta -2.4 -30.4 -14.4

Survey Unit - Interior Survey Area - N/A Building - T439D

-10.4 33.6

1.6 9.6

-18.4

25.6 41.6

-6.4

Survey Unit Description - Floors, walls and ceilings of Trailer T439D Removable Contamination Data Sheet 1000 dpm/100 cm² DCGL_w Mean

No measurement exceeds the  $\mathsf{DCGL}_\mathsf{w}$  $1.2 \, \mathrm{dpm/100 \, cm^2}$   $21.9 \, \mathrm{dpm/100 \, cm^2}$ 

Std Dev

-6.4 17.6 1.6 1.6 -2.4 -30.4 -46.4 -25.6 5.6 -2.4 -10.4 -10.4

# Total Surface Activity (dpm/100 cm²) Beta 136 -3

136	Survey Area - N/A	I - N/A				
ကု	Survey Unit - Interior	- Interior				
182	Building - T439D	439D				
36	Survey Unit	Descriptic	on - Floors	s, walls an	d ceilings o	Survey Unit Description - Floors, walls and ceilings of Trailer T439D
204	Total Surface Activity Data Sheet	e Activity	Data She	*		
29	DCGLw	2000 c	5000 dpm/100 cm ²	m²		
182	<b>-</b>	78				
201	Mean	-51.4 c	-51.4 dpm/100 cm ²	m²		
156	Std Dev	228.7 c	228.7 dpm/100 cm ²	m²		
101						
221	No measurement exceeds the DCGL _w	ment exce	eds the D	CGLW		
149	No measurement exceeds 75% of the the DCGL _w	ment exce	eds 75%	of the the	DCGL _W	
-52						
0	Precision					
-363						
-422	Location	ပ်	ပ	င္ပ္-င္	(C₁+C₂)/2	RPD
217	B-12F	182	147	35	164.5	21.2766
140	C-7F	136	49	87	92.5	94.05405
89	G-16F	156	82	74	119	62.18487
-195	A-4S	-363	-196	-167	-279.5	59.74955
-363	A-1N	-178	36	-214	-71	301.4085
-315						
-221	Precision (R	PD) is out c	of specifica	tion due to	Precision (RPD) is out of specification due to low value survey	ırvey
-451	measurements	ıts				
-328						
-240	Recalculated N	Z				
-331						
-178	$\Delta/\sigma_{\rm s} = ({\rm DCGL\text{-}LBGR})/\sigma_{\rm s}$	L-LBGR)/ರ್	ζ <b>Λ</b>			
	$\Delta/\sigma_{\rm s} = (5000-2500)/228.7$	-2500)/228.	.7			

 $\Delta/\sigma_s = 10.93$  (default to 3) Sign p = 0.998650 N = 10.88 10.88*1.2 = 13.05 N = 14

# (dpm/100 cm²) Alpha 23 -3 36 **Total Surface Activity**

23	Survey Area - N/A	- N/A				
ကု	Survey Unit - Interior	- Interior				
36	Building - T439D	439D				
7	Survey Unit	Description	on - Floor	s, walls an	d ceilings of	Survey Unit Description - Floors, walls and ceilings of Trailer T439D
ကု	Total Surface Activity Data Sheet	e Activity	Data She	et		
-10	DCGLW	100	100 dpm/100 cm ²	·m²		
က		28				
8	Mean	4.3	4.3 dpm/100 cm ²	:m²		
2-	Std Dev	10.4	10.4 dpm/100 cm ²	·m²		
3						
က	No measurement exceeds the DCGL _w	ment exce	eds the D	CGLw		
-16	No measurement exceeds 75% of the the	ment exce	eds 75%	of the the	DCGLw	
9						
10	Precision					
0						
0	Location	ပ်	ပ	ပ္-ပ္	$(C_{1+}C_2)/2$	RPD
19	B-12F	က	9	ကု	4.5	-66.66667
0	C-7F	23	0	23	11.5	200
0	G-16F	2-	က	-10	-2	200
ကု	A-4S	ကု	6-	9	φ	-100
ကု	A-1N	7	ကု	10	2	200
17						
ဇှ	Precision (RF	D) is out o	of specifica	ition due to	Precision (RPD) is out of specification due to low value survey	rvey
10	measurements	ıts				
9						
<u></u>	Recalculated N	Z				
7	$\Delta/\sigma_{\rm s} = ({\rm DCGL\text{-}LBGR})/\sigma_{\rm s}$	L-LBGR)/o	s			

# Precision

RPD	-66.66667	200	200	-100	200
(C₁+C₂)/2	4.5	11.5	-2	φ	2
ပ္-ပ္	ဇှ	23	-10	9	10
ပိ	9	0	က	ဝှ	ဇှ
ပ်	က	23	2-	ကု	7
Location	B-12F	C-7F	G-16F	A-4S	A-1N

# Recalculated N

N = 14

Survey Area: NIA Survey Unit: WTERNR Building: T439D

Survey Unit Description FLORS, What, + Certains of TRAILER T439D

# SURVEY SIGNATURE SHEET Removable /Total Surface Activity Performed By CELLEY DET Brinted Name RET Street

	Reliber	9 FEBOO
	RCT Signature	Date
	mos	Gresco
	RCT Signature	Date
	f. chiller	915300
	RCT Signature	Date
	f. thill	101530
	RCT Signature	Date
		The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s
Employee #		Date
	4H	
Employee #	RCT Signature	Date
Employee #	RCT Signature	Date
	Employee #	RCT Signature  RCT Signature  RCT Signature  RCT Signature  Employee # RCT Signature

# **Quality Control Measurements Performed By**

ARCHE PARKEL		Opah_	15 resc
RCT Printed Name		( ) RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date
		• ,	
RCT Printed Name	Employee #	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date

Survey Reviewed By

Page of 1

Survey Area: NA Survey Unit: INTERIOR Building: TY39D

Survey Unit Description

FLOORS, WALLS, + CORNES OF TRACER TYB9D

# **INSTRUMENT DATA SHEET**

# **Removable Contamination Survey Instrument Data**

Manufacturer	EBELLNE	EBENCHE	ESSILLE			
Model	SACH	Sacr	BCH			
Inst. ID #	1	2	3	4	5	6
Serial #	814	1407	920			
Cal. Due Date	2.11.00	6.15.60	4,14.00		No.	
Analysis Date	9FEBCO	Gressico I	9 65300		A	
Instrument Bkg 4779 10-min count time	0.3 2000	0.2 49	43.6			
Instrument Eff (%)	33.3 33	33.333	25			
Instrument MDA 2-min count time	8.හ	81	73			

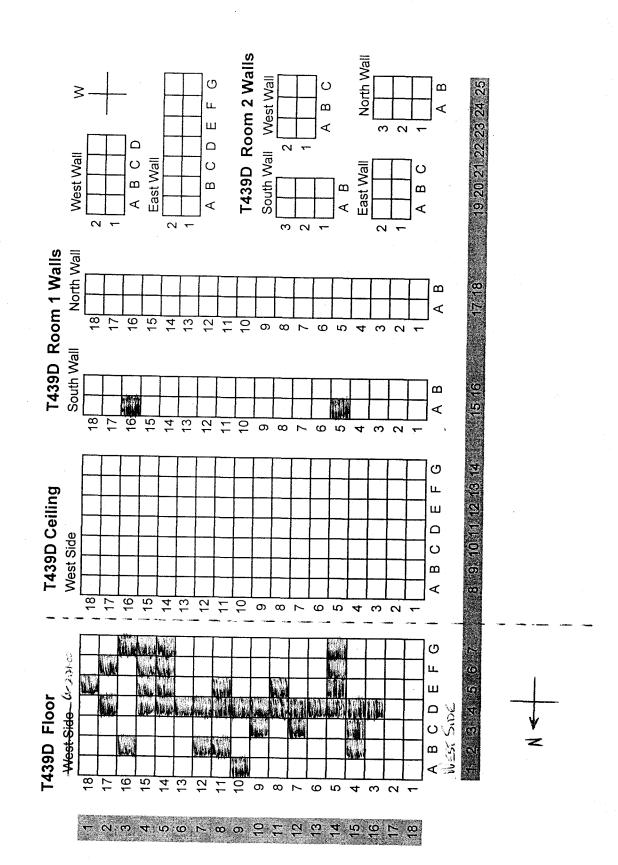
# **Total Surface Activity Instrument Data**

nufactur	er	N.E.	Tech.	N.E.	Tech.	N.E.	Tech.	e		), t			
Model		Ele	ctra	Ele	ectra	Ele	ctra	ELECTRA		ರಚ	C1124		
Inst. ID#		-	7		8		9	10		11		1	2
Serial # / Pr	robe #	1310	1158	1549	1354	1262	Eos	1370	1158	2.579	1924		
Cal. Due Da	ate	4.2	0, <i>0</i> 0	6.1	4.00	45.	30-00	4.2	00.0	ွ. င	(00)	بأز	
Survey Date	е	95	පිරිදර	Git	BCC	916	BCC	1018	93c0	151	ぐぶら		À
Alpha Bkg 90-sec count time	Beta Bkg 90-sec 🏰 🗥 count time	i.3	403	2.6	395	2.7	475	2.0	450	67	427		
Alpha Eff (%)	Beta Eff (%)	21.42	29.47	18.80	30.11	20.55	30.62	2192	29:47	21.54	30.65		
Alpha MDA 90-sec Apm count time	Beta MDA 90-sec dpm. count time	28	265	36	257	39	275	33	280	23	262		

Page 2 of 11

ckage ID: 2000-01

Building: T439D Survey Unit: Interior Son LOCATIONS:

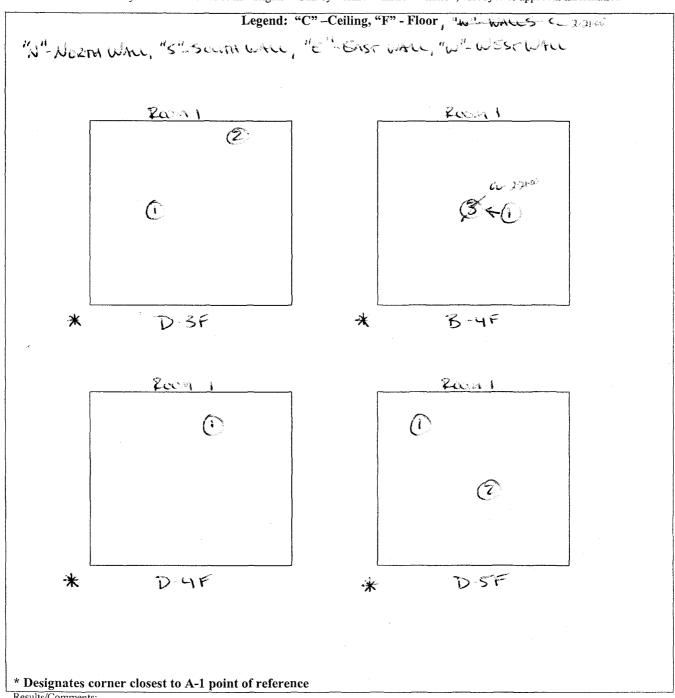


Page 30011

# Final Survey NE Electra Scan & Investigation Survey Map

Survey Area:	Survey Unit:	Building: T4391)
Survey Unit Description:	us, + Century of Tr	2ncsc 74395
RCT Initials/Date: Z - 9 - 00 J		RCT Initials/Date: N/A

Refer to the Final Survey NE Electra Scan & Investigation Survey Form for instrumentation, surveyor & approval information.



Results/Comments:

Rev. 020900

Electra alpha scans were performed at the locations detailed on the survey map(s). All required accessible areas were scanned. All initial scan results were <225 dpm/100cm², unless noted on the survey form.

Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the survey form.



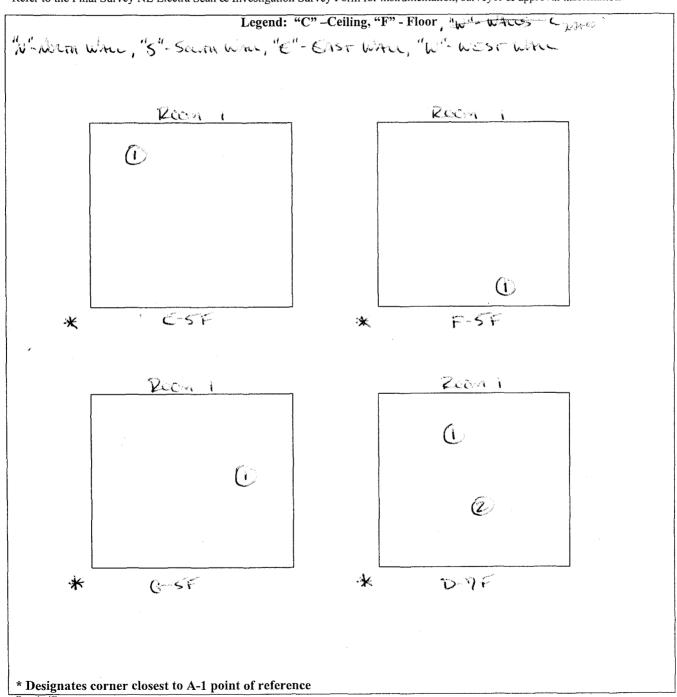
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Page 4 of 1

# Final Survey NE Electra Scan & Investigation Survey Map

Survey Area:	Survey Unit:	Building:
Survey Unit Description:	inus, + Convos or Transc	. 174391)
RCT Initials/Date: 1 2-9-00		RCT Initials/Date: NA

Refer to the Final Survey NE Electra Scan & Investigation Survey Form for instrumentation, surveyor & approval information.



Results/Comments:

Rev. 020900

Electra alpha scans were performed at the locations detailed on the survey map(s). All required accessible areas were scanned. All initial scan results were <225 dpm/100cm², unless noted on the survey form.

Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the survey form.



# Final Survey NE Electra Scan & Investigation Survey Map

Survey Area:	N/A	Survey Unit:	2108	Building:	59.D
Survey Unit Desc		us, + Counces		2 T439D	
RCT Initials/Date	. 1	RCT Initials/Date:		RCT Initials/Da	te: NA
Refer to the Final S	Survey NE Electra Scan & In	vestigation Survey Form for	instrumentation, surv	veyor & approval in	nformation.
,, 11	\$2.14	Legend: "C" -Ceiling,	F" - Floor	whees con	ajeco"
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* Designates corner closest to A-1 point of reference Results/Comments:

D-100

Electra alpha scans were performed at the locations detailed on the survey map(s). All required accessible areas were scanned. All initial scan results were <225 dpm/100cm², unless noted on the survey form.

D-HF

Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the survey form.



Rev. 020900

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# Final Survey NE Electra Scan & Investigation Survey Form

Survey	ń	JA		Survey Un	1	RIOR	ļ	Building:	ひ		
Survey	Unit Des	cription:	Z0025 12	Kie r ( 2)	1100-5	OF M	ZALIST TO	1300			
1		Ele	ectra DP-6 Be	eta .	Electra DP-6 Alpha						
Loc. ID#	RCT ID#	Inst. ID#	Elevated Audible observed? "Y" or "N"	60-sec PAT (dpm/100cm2)	RCT ID#	Inst. ID#	4-sec Audible observed? "Y" or "N"	30-sec Static (gcpm)	90-sec PAT (dpm/100cm ² )		
20											
DBFI		10	N			8	Υ	$\varepsilon$	.U/A		
D-3F2							γ	10	NA		
3-461							Ý	16	NA		
CYF						4 1	10	NIA	NIA		
D-4F1							Y	10	NA		
DSFI							Υ	16	NA		
D-5 F2							Y	2	NIA		
ESFI						V	1	4	70/A		
F5F1			P - V (AMA)			77	Υ	10	NA		
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Rev. 020900

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# Final Survey NE Electra Scan & Investigation Survey Form (Continuation Sheet)

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Survey	Unit Des	ران. .cription:	a contract the	<b>6</b> %						
		FL	ectra DP-6 B	Notae	Cicla(	Electra DP-6 Alpha				
Loc.	RCT	Inst.	Elevated	60-sec PAT	RCT	Inst.	4-sec Audible	30-sec Static	90-sec PAT	
ID#	ID#	ID#	Audible observed? "Y" or "N"	(dpm/100cm2)	ID#	ID#	observed? "Y" or "N"	(gcpm)	(dpm/100cm ² )	
Roo		(CONT.)	<b>)</b>						·	
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Rev. 020900

Survey Area: NA Survey Unit: INTERIOR Building: TU39D

Survey Unit Description
FLOORS, WACOS, & CEICHES OF TRAILER TU39D

Promotion 1 3 0 43 0.3 -0.6 -0.9 -2.9	t ID Gross Counts # (gcpm)		1		Removable Activity (dpm/100cm2)		
(2) F 1 3	β α		β α	β	α	β	
1   3   0   43   0.3   -0.6   -0.9   -2.0     2   3   1.0   36   0.8   -1.6   2.4   -5.0     3   1.0   40   0.1   -3.6   2.1   -14.0     4   1   3   1.0   40   0.1   -3.6   2.1   -14.0     5   1   3   1.0   5.2   0.1   8.4   7.1   3.5     5   1   1   3   1.0   5.2   0.1   8.4   7.1   3.5     5   1   1   3   0   5.2   0.1   8.4   7.1   3.5     5   1   1   3   0   5.4   -0.6   1.6     5   1   3   0   36   -4.6   2.4   -6.6   1.6     5   1   3   0   36   -4.6   2.4   -6.6     5   1   3   0   36   -4.6   2.4   -6.6     6   1   3   0   36   -4.6   2.4   -6.6     7   1   3   0.5   50   0.2   0.4   0.6   0.9     7   1   3   0.5   50   0.2   0.4   0.6     7   1   3   0.5   42   0.5   -4.6   0.9   -4.6     7   1   3   0   36   -6.3   4.4   -6.1     7   1   3   0   36   -6.3   4.4   -6.1     7   1   3   0   36   -6.3   4.4   -6.1     7   1   3   0   36   -6.3   4.4   -6.1     7   1   3   0   36   -6.3   4.4   -6.1     7   1   3   0   36   -6.3   -7.6   -6.1     7   1   3   0   36   -6.3   -7.6   -6.1     7   1   3   0   36   -6.3   -7.6   -6.1     7   1   3   0   36   -6.3   -7.6   -6.1     7   1   3   0   36   -6.3   -7.6   -6.1     7   1   3   0   36   -6.3   -7.6   -6.1     7   1   3   0   36   -6.3   -7.6   -6.1     7   1   3   0   36   -6.3   -7.6   -6.1     7   1   3   0   36   -6.3   -7.6   -6.1     8   1   3   0.5   41   0.9   -7.6   0.9     8   1   3   0.5   41   0.9   -7.6   0.9     8   1   3   0.5   41   0.9   -7.6   0.9     8   1   3   0.5   43   0.1   -3.6   7.1     8   1   3   0.5   43   0.1   -3.6   7.1     8   1   3   0.5   43   0.1   -3.6   7.1     9   1   1.7   7   7.6   7.1     9   1   1.7   7   7.6   7.1     1   1   3   0   5   5   5   5   5   5     1   3   1.4   3.9   45     1   3   0.5   5   5   5   5   5     1   3   1.4   3.9   45     1   3   1.4   3.9   45     1   3   1.4   3.9   45     1   3   1.4   3.9   45     1   3   1.4   3.9   45     1   3   1.4   3.9   45     1   3   1.4   3.9   45     1   3   1.4   3.9   45     1   3   1.4   3.9   45     1   3   1.4   3.9   45     1   3   1.4   3.9   45		_					
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Survey Area: NA Survey Unit: WTERKE Building: TH39D

Survey Unit Description

FLOORS, Williams, & Centres of TRACES TH39D

			T	otal	Surfa	ace A	Activ	ity D	ata (	Shee	t		
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0-17F		$C_{1}$	9	90	90	1.3	509	2.0	540	0.7	31	3	101
FINE		G	9	90	90	1.3	511	2.0	SKI	0.7	68	3	2.21
£-181€		G	9	90	90	5.3	487	2.0	533	-3.3	46	-16	149
A-60		9	9	90	90	2.7	523	4.0	507	1.3	16	6	-52
K60		q	9	90	90	2.7	501	4.7	507	2.0	0	10	0
(-7C		9	9	90	90	27	503	2.7	391	0	~117	0	-363
6-90		9	9	90	90	1.3	497	1.3	367	0	-130	0	-4270
B-14C		G	9	90	90	0.0	515	4.0	582	4.0	61	101	217
C-15C		a	9	90	90	2.0	497	2.0	SYU	0	43	O	140
5-17c		9	9	90	90	5.3	498	5.3	519	O	21	0	68
A-25		9	9	90	90	2.0	981	1.3	421	-07	-60	~3	-195
4-45		9	9	90	90	2.7	479	2,6	367	-0.7	112	-3	-363
B-125		Q	9	90	90	1.3	494	4.7	397	34	-97	וֹין	-315
4-11/0		G	Q	90	90	2.0	467	1.3	399	-0.0	~ (B	-3	-221
D-1W		9	9	90	90	2.0	509	4.0	370	2.0	-139	10	=451
13-28		9	9	90	90	2.7	508	4.0	407	1.3	-101	Ć.	-328
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Note: QC measurements are to be collected by a different technician than the original survey. Mark the QC location number in the "Sample Location" column. Material background is assumed to be zero unless otherwise noted. "LAB" ~ local area background.

Page 10 of 11

Survey Area: NA Survey Unit: NOTECACK Building: TU39D

Survey Unit Description

Tunes, Was, + Centrols of Transcription

Sample location	RCT ID#	Ins	t ID#		ount time ec)		AB pm)		Count pm)	Net counts (cpm)			Activity 100cm2)
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2001				90	90								
18-1W		<u>_G</u>	9	90	90	1.3	495	2.7	121	1.4	-74	-7	-240
B-1E		9	9	90	90	3.3	493	4.7	3011	1.4	-102	7	-330
A-12		$c_{i}$	9	90	90	1.3	505	2.7	450	1,4	-55	7	-178
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<u>i3-3€</u> QC		11	11	90	90	60	489	2.0	534	1.3	45	4	147
67FQC		H	11	90	90	1-3	346		411	0	15	0	49
<u> </u>		1	il	90	90	2.0	562	2.7	587	<i>o</i> :n	25	3	82
A-45QC		1	u	90	90	4.0	379	2.0	319	-2.0	-60	-9	-196
<u> A-1,0 QC</u>		1	11	90	90	2.0	381	1.3	392	-07	11	-3	36

Note: QC measurements are to be collected by a different technician than the original survey. Mark the QC location number in the "Sample Location" column. Material background is assumed to be zero unless otherwise noted. "LAB" ~ local area background.

Page 1 0 of 1

# SURVEY PACKAGE COVER SHEET

Package ID: 2000-01	Building: T439D									
Survey Area: Not Applicable	Survey Unit: Exterior									
<b>Survey Unit Description:</b> This trailer was placed on site 1/85, it's located north of Building 440, and immediately west of Building 439. The trailer size is 24' x 64' x 12' high, it's a double wide module.										
Building Information:										
Survey Type: Reconnaissance Level Characterization Survey ☐ Final Status Survey X  Building Type: Type 1 X Type 2 ☐ Type 3 ☐  Classification: Class 1 ☐ Class 2 ☐ Class 3 X Unknown ☐  Contaminants of Concern: Plutonium X Uranium X Other ☐										
Justification for Classification: This facility h		vaical								
contamination.	as no known mstory of radioic	gicai								
Special Support Requirements: Ladder, manlift, scaffolding, and/or remote reach tools and instrumentation may be required for surveying in overhead areas. Overhead areas include upper walls and ceilings on the interior and upper walls and roof on exterior.  Special Safety Precautions: Access to overhead areas may require additional controls. Use caution when working in overheads.										
Isolation Controls:										
Level 1  Level 2 X N/A										
<b>Labeling Requirements:</b> The location where find be marked using a sticker or a marker and then										
Survey Package Implementation:										
	0.4									
RICK ROBERTS		1/38/60								
2.0	iological Engineer Signature	Date								
NOT APPLICABLE		N/A								
	S Manager Signature	Date								
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RESS Manager Printed Name	SS Manager Signature	Date								

08/3/00

204/242 RO 3-564

# SURVEY PACKAGE TRACKING FORM

Package ID: 2000-01 Survey Area: Not Applicable		Building: T439D Survey Unit: Exterior		
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Rev. 9/99

205/242 RU 3.565



# SURVEY PACKAGE CORRECTION/CHANGE HISTORY FORM

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Rev. 9/99

206/292 RO 3-566

#### INITIAL SURVEY PACKAGE DESIGN FORM

Package ID: 2000-01		Building: T439D		Type: 1		
Survey Area: Not Applicable Survey Unit:		Survey Unit: Ext	erior			
Survey Unit Description: This trailer was placed of and immediately west of Building 439. The trail module.						
Survey Type:	***	- Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Company - Comp	Classification:			
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28	0	0	# 82	0	Biased	
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Random/Uniform Surface Activity Measurements	Biased Surface Activity Measurements	Equipment Surface Activity Measurements	Media Samples	Volumetric Samples	Surface Activity Scans	
Building:		Туре:	Survey Area:			
Survey Unit:			Area (m²):			
Survey Unit Desc	eription:					
Survey Type:			Classification:			
RLC Survey □	FSS □		Class 1 □ Class	2 □ Class 3 □ U	Jnknown □	
Random/Uniform Surface Activity Measurements	Biased Surface Activity Measurements	Equipment Surface Activity Measurements	Media Samples	Volumetric Samples	Surface Activity Scans	

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207/242 PO 3-567

574

#### SURVEY PACKAGE SURVEY/SAMPLING INSTRUCTIONS FORM

Package ID: 2000-01	Building: T439D
Survey Area: Not Applicable	Survey Unit: Exterior

Survey Unit Description: This trailer was placed on site 1/85, it's located north of Building 440, and immediately west of Building 439. The trailer size is 24' x 64' x 12' high, it's a double wide module.

Minimum Survey/Sampling Measurement Requirement					
Measurement	Number and Type	Com			
~ ^					

Measurement	Number and Type	Comments
Surface Activity	EXTERIOR WALLS/ROOF:	SEE NOTE 1
Measurements	28 surveys will be taken per the attached survey	SEE NOTE 2
	map.	SEE NOTE 3
		SEE NOTE 4
	QUALITY ASSURANCE SURVEYS	SEE NOTE 5
		SEE NOTE 6
·	EXTERIOR WALLS/ROOF:	
	5 surveys will be taken per direction from radiological engineering.	
	radiological engineering.	
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208/242 RO 3-568

#### SURVEY PACKAGE SURVEY/SAMPLING INSTRUCTIONS FORM (cont)

	Building: T439D
Survey Area: Not Applicable	Survey Unit: Exterior

**Survey Unit Description:** This trailer was placed on site 1/85, it's located north of Building 440, and immediately west of Building 439. The trailer size is 24' x 64' x 12' high, it's a double wide module.

Minimum Survey/Sampling Measurement Requirements				
Measurement	Number and Type	Comments		
Surface Scanning	EXTERIOR WALLS/ROOF:	SEE NOTE 1		
_	Biased surface scans will be performed on the	SEE NOTE 2		
	exterior where contamination would accumulate. This includes seams, cracks and corners. Both	SEE NOTE 3		
	the exterior walls and roof will be scanned.	SEE NOTE 4		
	l long	SEE NOTE 5		
Change #7 EDMU/6-20-00	No more than 10% of the total area will be scanned.	SEE NOTE 6		
	QUALITY ASSURANCE SCAN SURVEYS			
	EXTERIOR WALLS/ROOF:			
	5 percent of total number of scans or of total scan area will be taken per direction from radiological engineering.			
	<b>B</b> ARANT			
Media Samples	NONE %.			
	Charles # 5 Days Hoge			
Volumetric	NONE			
Samples				
		·		
Isotopic Gamma	NONE			
Scans				

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#### SURVEY PACKAGE SURVEY/SAMPLING INSTRUCTIONS FORM (cont)

Package ID: 2000-01Building: T439DSurvey Area: Not ApplicableSurvey Unit: Exterior

**Survey Unit Description:** This trailer was placed on site 1/85, it's located north of Building 440, and immediately west of Building 439. The trailer size is 24' x 64' x 12' high, it's a double wide module.

#### Survey/Sampling Instructions

**NOTE 1:** Surveys of the area were established on a random basis and are delineated on page 14, RSFORMS-16.01-10, of the survey package. Survey points will be taken in the middle of the survey grid and will be cross-referenced to a common reference point in the trailer. These surveys will be taken in accordance with PRO-476-RSP-16.02, "Radiological Surveys of Surfaces and Structures", for the following:

- Total alpha contamination
- Total beta contamination
- · Removable alpha contamination
- Removable beta contamination
- Biased scan measurements for alpha then beta/gamma contamination

For total alpha and total beta surveys, the LAB will be determined at each survey point by placing a piece of plywood over the probe face that is at least 0.5 inch thick and performing an alpha count and a beta count. The material background for both total alpha surveys and total beta surveys will be considered to be 0 dpm/100 cm².

Alpha scanning using the NE Electra for the DP6-BD and DP8A probes will be in accordance with Letter SJR-001-99, "Alpha Scan Rates for Building 779 Cluster Final Status Surveys," and Letter SJR-004-99, "Performance of Scan Surveys with the Bicron/NE DP8 Probe for Building 779 Cluster Final Status Surveys," respectively. Beta scanning using the NE Electra.

**NOTE 2:** Quality assurance prescribed surveys of the area will be taken in accordance with PRO-476-RSP-16.02, "Radiological Surveys of Surfaces and Structures" per the requirements in PRO-479-RSP-16.05, "Radiological Survey/Sample Quality Control," for the following:

- Direct alpha contamination
- Direct beta contamination
- Scan measurements for alpha then beta/gamma contamination

The location of quality assurance surveys will be delineated by radiological engineering after the initial surveys are performed. Quality assurance surveys will be performed by a different individual than performed the original survey.

**NOTE 3:** The RCT shall document the results for all surveys performed and maintain with the survey instructions package.

**NOTE 4:** All survey instruments will be performance checked both prior to and after performing surveys, and both performance checks will be documented. Contact Radiological Engineering for direction if an instrument fails the post performance check.

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#### SURVEY PACKAGE SURVEY/SAMPLING INSTRUCTIONS FORM (cont)

Package ID: 2000-01	Building: T439D
Survey Area: Not Applicable	Survey Unit: Exterior

Survey Unit Description: This trailer was placed on site 1/85, it's located north of Building 440, and immediately west of Building 439. The trailer size is 24' x 64' x 12' high, it's a double wide module.

#### **Survey/Sampling Instructions**

**NOTE 5:** The following MDA requirements are a goal for each survey instrument. The MDA shall not exceed the Investigation Levels outlined in NOTE 6.

- 10 dpm/100 cm² for removable alpha contamination
- 50 dpm/100 cm² for total alpha contamination
- 500 dpm/100 cm² for removable beta contamination
- 2500 dpm/100 cm² for total beta contamination
- 150 dpm/100 cm² for alpha scan
- 7500 dpm/100 cm² for beta scan

**NOTE 6:** If a survey result exceeds the following investigation levels, contact radiological engineering before proceeding:

- 15 dpm/100 cm² for removable alpha contamination
- 75 dpm/100 cm² for total alpha contamination
- 750 dpm/100 cm² for removable beta contamination
- 3750 dpm/100 cm² for total beta contamination
- 225 dpm/100 cm² for alpha scan
- 11250 dpm/100 cm² for beta scan

An investigation will be performed into the elevated results.

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									PA	GE 9 of	15
			TOTAL S	SURFACI	E ACTIV	ITY SURV	EY DATA	FORM			
Survey A	rea: NOT AP	PLICAB	LE S	Survey Ur	it: EXTI	ERIOR		Build	ling: T439	D	
Survey U	Survey Unit Description: This trailer was placed on site 1/85, it's located north of Building 440, and immediately								ediately		
	Building 439										
						Instrument	Data				
Date / Time											
•	Inst. No.: $\alpha$ Probe No.:										
Inst.	Νο.: β,γ	*****		:		Probe No.:	:				
1 ^											
Effic	iency (%): α		βγ	(cı	om/dpm)	Mat. Area	Bkgd: α		βγ	(dpm	$/100 \text{ cm}^2$ )
MDC	C (dpm/100 cm ² e Correction Fa	'): α		βγ		2, 2, 1					
	Dua Datas							Almha	Data		
Cai. i	Due Date.			7700011	1999/11	Surv	ey Type:	Alpha	Beta	<u> </u>	
										**Net	Activity
Sample	Location /	1	s Counts	1	Bkgd		Counts		Activity		Activity -
Number	Description	(	cpm)	(cp	om)	(0	epm)	(dpm/	100 cm ² )		rea Bkgd. 100 cm ² )
								1		(upin/)	.00 Cm )
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							Gross Activ	ity			
RCT Printed N	Name		Employe		ctivity - M	1at. Bkg = I	Net Activity		Date		<b>A</b>
	-										
RCT Technics	al Supervisor Printed N	ame	Employe	e #	***	RCT Technic	al Supervisor Signa	hire	Date		

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REMOVABLE SURFACE ACTIVITY DATA SURVEY FORM									
Survey A APPLIC	rea: NOT ABLE	Su	rvey Unit: EX	KTERIOR		Building: T439D			
Survey U	Survey Unit Description: This trailer was placed on site 1/85, it's located north of Building 440, and								
immedia	ately west of B	uilding	439. The tra	ailer size is 24	4' x 64' x 12	' high, it's	s a double	wide me	odule.
			S	mear Survey II	istrument Da	ıta			
Count I	Count Date / Time:         Inst. No.:       Probe No.:         Inst. Efficiency (%): α       βγ         MDC (dpm/100 cm²):       α       βγ Inst. BKG: α       βγ       (cpm)								
Inst. No	D.: ficiency (%): a		By	Probe N	0.:				
MDC (	dpm/100 cm ² ):		α ργ	βγ Inst. BK	G: α	β^	٧	(cpm)	
Cal. Du	dpm/100 cm ² ): ie Date:			Survey 7	ype: Alpha	1	Beta-Gamn	na	
				Removable S	Survey Data	-			
Swipe Number	Location / Description	Co	mments	Gross C	i	Net Counts Cpm		Removable Activity * (dpm/100 cm ² )	
				α	βγ	α	βγ	α	βγ
				-				<u> </u>	
			. 40						
J									
		AT-1000							
			<del></del>						
			7-9-1						
		•							
			* (GROS	S Cts - Inst. Bk	$g) \div (Eff.) = A$	CTIVITY			
RCT Printed N	ame		Employee #		RCT Signature			D	ate
RCT Technical Supervisor Printed Name Employee #		RCT Technical Su	pervisor Signatur	e	D	ate			

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SURFACE SCANNING DATA SHEET						
urvey Area: NOT APPLICABLE		Survey Unit: EXTE	RIOR	Building: T439D		
Survey Unit Description	on: This trailer v	was placed on site 1/	85, it's located no	rth of Building 440	and	
immediately west of Building 439. The trailer size is 24' x 64' x 12' high, it's a double wide module.						
		Scan Instru	ment Data			
Date / Time:						
Inst. No.: Cal. Due Date:		Probe No.:				
Cal. Due Date:		Survey Type:	Alpha Beta-Gar	nma		
		Scan Surv	ey Data			
Sample	Location	/		Sca		
Number	Description	on C	Comments	(dpm/10	$0 \text{ cm}^2$	
				α*	β,γ*	
			Anne de l'en de l'anne de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la company de la c			
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	<u></u>					
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DCT D.: A. 1N.						
RCT Printed Name	Empl	oyee #	RCT Signature		Date	
RCT Technical Supervisor Printed Name Employ		oyee #	RCT Technical Supervisor Sig	nature	Date	

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^{*} If an elevated count rate or a sustained audible increase in the count rate is observed during the scan survey, OR the rate meter alarm sounds, THEN: Scan the immediate vicinity to determine the bounds of the elevated activity, and take a "Total Surface Activity" measurement and record. Mark the location of most elevated activity on the surface with a self-adhesive label or equivalent, ensuring that the marking is not applied directly over the point of interest. Further analysis is required by RS Supervision.

Date

#### SURVEY PACKAGE CALCULATION WORKSHEET

Package ID: 2000-01	Building: T439D						
Survey Area: Not Applicable	Survey Unit: Exterior						
<b>Survey Unit Description:</b> This trailer was place 440, and immediately west of Building 439. The wide module.	<b>Survey Unit Description:</b> This trailer was placed on site 1/85, it's located north of Building 440, and immediately west of Building 439. The trailer size is 24' x 64' x 12' high, it's a double wide module.						
X Total Surface Activity	☐ Media Surface Activity						
X Removable Surface Activity	☐ Volumetric Surface Activity						
Step 1: Calculate the relative shift $\Delta/\sigma_s$ . $\Delta/\sigma_s = (DCGL-LBGR)/\sigma_s$ $\Delta/\sigma_s = 1.0$							
where: A value of 1.0 was chosen since no survey data use of 1.0 maximizes the number of surveys req	is available and $\Delta/\sigma_s$ may vary between 1.0 and 3.0. The uired.						
that a random measurement from the survey uni	Step 2: Determine Sign p using the calculated relative shift and Table 7-1. Sign p is the estimated probability that a random measurement from the survey unit will be less than the $DCGL_w$ when the survey unit median is actually at the LBGR. Sign p = 0.841345						
Step 3: Determine Decision Error Percentiles for $Z_{1-\alpha}$ are Typical ( $\alpha$ ) and ( $\beta$ ) values used at RFETS are 0. value of 1.645 and 1.645 respectively.	and $Z_{1-\beta}$ and the selected decision error levels $\alpha$ and $\beta$ . 05 and 0.05 respectively. This yields a $Z_{1-\alpha}$ and $Z_{1-\beta}$						
Step 4: Calculate Number of Data Points (N) for Sign T	est using the following equation:						
$N = \frac{(Z_{1-\alpha} + Z_{1-\beta})^2}{4(Sign  p - 0.5)^2} = 23.22$							
Step 5: Increase the number of data points by 20% to ensure sufficient power of the tests and to allow for possible data losses. 23.22*1.2 = 27.86							
Conclusion:							
A total of 28 data points will be needed to satisfy MARSSIM statistical requirements.							
RICK ROBERTS	165 16 1 1 1 1 1 1 1 1 1 2 1 2 2 1 2 2 1 2 2 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2						
Project RE Printed Name	Project RE Signature Date						
H.B. ESTABROOKS							

C354

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RESS RE Signature

RESS RE Printed Name

#### SURVEY PACKAGE SURVEY MAP

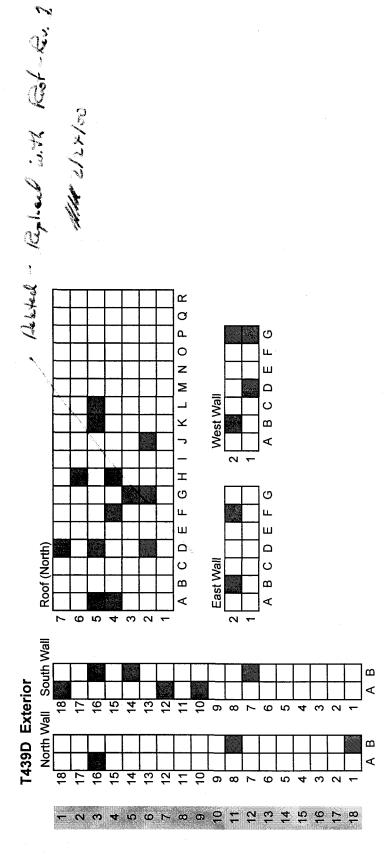
Package ID: 2000-01	Building: T439D						
Survey Area: Not Applicable	Survey Unit: Exterior						
Survey Unit Description: This trailer was placed on site 1/85, it's located north of Building 440, and immediately west of Building 439. The trailer size is 24' x 64' x 12' high, it's a double wide module.							
Floor Area (m²): 126	Total Area (m²): 226						
SEE ATTACHED SURVEY MAP							
·							
·							

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Survey Unit: Exterior Package ID: 2000-01 Building: T439D



= one square meter = direct & swipe Y-Coordinate

X-Coordinate

23 5 4 23 20 11 24 12 4 25 4 5 26 6 11 27 3 9 28 8 3

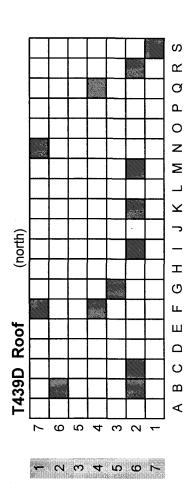
Total Surface Area = 226 m²

10% Scan Surface Area 23 m²

# SURVEY PACKAGE SURVEY UNIT Roof - Revision 1

Package ID: 2000-01 Building: T439D

Survey Unit: Exterior



Roof Surveys randomly chosen with original number of survey points (13 survey points)

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#### SURVEY PACKAGE VALIDATION CHECKLIST FORM

Package ID: 2000-01	<b>Building:</b> T439D	
Survey Area: Not Applicable	Survey Unit: Exterior	
Survey Type: Reconnaissance Level Characterization	Survey ☐ Final Status Surve	у Х
All Documentation Reviewed for Completion	RCT Supervisor	PRE
Scan Surveys	N.	Day
Total Activity Surveys	2/	RMY
Exposure Rate Surveys	NA	NA
Removable Surveys	3/	Keny
Media Samples	No.	KOM
Volumetric Samples	NA	NA
All Surveys and Samples Accounted For	RCT Supervisor	PRE
Scan Surveys	V	BONY
Total Activity Surveys	A.	Kany
Exposure Rate Surveys	NA	NA
Removable Surveys	N/	EDM
Media Samples		EM
Volumetric Samples	NA	NA
Comments:		
		**************************************
Rox Worker		1/12-00
RCT Supervisor Printed Name  RICK ROBERTS	RCT Supervisor Signature	Date
Project RE Printed Name	Project RE Signature	6-12-00 Date
H. B. ESTABROOKS  T. W. Manager Printed Name	RESS Manager Signature	S-3-00 Bate

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Survey Area: N/A
Survey Unit: Exterior
Building: T439D

Survey Unit Description: Roof and walls of Trailer T439D

#### 8. POST-PERFORMANCE ACTIVITIES

#### 8.1 Documentation

Reviewed the above mentioned Survey Package and associated measurement data in accordance with PRO-478RSP-16.04, Radiological Survey/Sample Data Analysis. The following items are noted:

- 1. Various notes are provided on the Survey Package DQA Checklist. See DQA Checklist.
- 2. Various notes are provided within the Survey Package. See Survey Package.
- 3. DQA Checklist should have location to input Survey Area, Survey Unit, Building and Survey Unit Description to ensure improved tracking.
- 4. Section 7.2.2 Accuracy, of RSP-16.04 should be rewritten to provide usable accuracy analysis process. Interoffice Memorandum REVISION TO PRO-478-RSP-16.04, RADIOLOGICAL SURVEY/SAMPLE DATA ANALYSIS EDM-001-00 was written and concurred on to provide a usable accuracy analysis process.
- 5. Section 7.3, Data Quality Assessment (DQA) does not have instruction to address the situation when survey unit activity measurements exceed the  $DCGL_W$  but the survey unit mean does not exceed the  $DCGL_W$ .
- 6. Spreadsheets provided to perform statistical calculations.
- 7. Several forms have been generated to replace forms from RSP-16.02. RSP-16.02 should be revised to reflect this change/improvement.
- 8. Survey maps need improvement. Methodology employed is one that was used prior to RSP-16.01 approval. Recommend scale maps with grid overlays or CAD drawing in the future. See B779 Closure Project maps as examples.
- 9. See data sheets for corrected data.

Prepared by: 4. N. 2003 (2-1-5)

(09/30/99)

#### APPENDIX A

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#### **DQA** Checklist

		Performed By	Comments
§	Item	(Initials/Date)	(number & attach)
7.1	Data Verification	Kmu/3-13-00	
7.1[1]	DQOs implemented as prescribed	Eau/ 3-13-00	
7.1[2]	All required supporting documents present	Emil 3-13-00	
7.1[3]	Outliers / anomalies addressed	Epu 3-13-00	
7.2	Data Validation	1004/6/1/50	
7.2.1	Survey/Sample Precision	Dey/6/1/00	
7.2.2	Survey Accuracy	FAM / 6/1/00	See spreidsheits
	Sample Accuracy	104/6/1/00	
7.2.3	Data Representative of survey unit	Ray / 6/1/00	yes
7.2.4	Survey/Sample/Scan Completeness	100 / 6/1/00	1! /
7.2.5	Data Comparable to related units	1 7 1 3	
7.3	DQA complete	100 / 6/1/60	yes see sprealsheets
7.3[3]	Any measurement > DCGL _w ?	xxxx/6/1/00	
7.3[4]	Mean > DCGL _w	NA	
7.3.[5]	Any measurement > maximum DCGL	NA	
7.4	Evaluation	NA	
7.4[1][D]	New survey package (if req'd)	NA	
7.4[1][E]	Radiological improvement report (if req'd)	NA	
7.4[2]	Verify documentation complete	NA	
8.0	Peer review	6 13/00 00	10000
	Package submitted to project management	Maria Cara and	
9.1	Records to Records Center	18 mm /8-82-00	
	(copy to project files)  OTE: The DOA Flow Chart (Appendix B) is	(	1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2

NOTE: The DQA Flow Chart (Appendix B) is provided as aid to illustrate the DQA process when performing survey/sample data analysis activities describe in this procedure.



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# (dpm/100 cm²) Alpha Removable Activity

ea - N/A	Survey Unit - Exterior	T439D	Survey Unit Description - Roof and walls of Trailer T439D	Removable Contamination Data Sheet	20 dpm/100 cm ²	28	1.3 dpm/100 cm ²	1.9 dpm/100 cm ²		No measurement exceeds the DCGL _W																	
Survey Area - N/A	Survey Un	Building - T439D	Survey Un	Removabl	DCGLW	c	Mean	Std Dev		No measu																	
6.0-	2.4	9.0	6.0	6.0-	6.0	9.0	2.4	9.0	9.0-	6.0-	6.0	3.6	2.4	9.0	2.1	9.0-	6.0-	2.4	5.2	9.0-	6.0-	3.9	5.2	2.4	3.6	9.0-	3.6

# Removable Activity

-54.4 -22.4 9.6

-14.4 -2.4 1.6 9.6

-10.4 -14.4 1.6 -30.4 29.6 -6.4

29.6 29.6 -23.6 6.4 -9.6 -1.6 -49.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6 -13.6

(dpm/100 cm²) Beta

Survey Unit - Exterior Survey Area - N/A

Building - T439D

Survey Unit Description - Roof and walls of Trailer T439D Removable Contamination Data Sheet

1000 dpm/100 cm² 28 DCGLw

-8.7 dpm/100 cm² 20.0 dpm/100 cm²

Std Dev Mean

No measurement exceeds the DCGL_W

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<u>₹</u>	pha
Act	² ) A
rface	CE
Sur	100
Total	(dpm)

24 73 73 16 16 17 77 149 83 83	Survey Area - N/A Survey Unit - Exterior Building - T439D Survey Unit Description - Roof and walls Total Surface Activity Data Sheet DCGL _w 100 dpm/100 cm ² Nean 56.8 dpm/100 cm ² Std Dev 42.6 dpm/100 cm ² Std Dev 42.6 dpm/100 cm ² Four measurements exceeds the DCGL _w Eleven measurements exceed 75% of the Precision  Location C ₁ C ₂ C ₁ -C ₂ A-16N 12 -60 72 A-18S 18 30 -12 G-1W 21 26 -5 G-3R 83 26 57 M-2R 84 -16 100	a - N/A - Exterior 439D Descripti e Activity 28 56.8 42.6 rements e surements 12 18 12 18 21 83 84	terior cription - Roof and cription - Roof and crivity Data Sheet 100 dpm/100 cm² 28 56.8 dpm/100 cm² 42.6 dpm/100 cm² ments exceeds the D ments exceed 75% cc² cc² cc² cc² cc² cc² cc² cc² cc² cc	and walls of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the color of the c	Survey Area - N/A         Survey Unit - Exterior         Building - T439D         Survey Unit Description - Roof and walls of Trailer T439D         Total Surface Activity Data Sheet         DCGL _w 100 dpm/100 cm²         Andean       56.8 dpm/100 cm²         Std Dev       42.6 dpm/100 cm²         Std Dev       42.6 dpm/100 cm²         Four measurements exceeds the DCGL _w Eleven measurements exceed 75% of the the DCGL _w Precision       C ₁ C ₁ C ₂ (C ₁ C ₂ )/2 R         A-16N       12       -60       72       -24         A-16N       12       -60       72       -24         A-18S       18       30       -12       24         A-18S       83       26       -5       53.5       -71         G-1W       21       26       -5       54.5       104         M-2R       84       -16       100       34       294         Precision (RPD) is out of specification due to low value survey	39D RPD -300 -50 -51.2766 104.5872 294.1176
93 84 60	Precision (KPL measurements	PD) is our rits	or specinca	ition aue to	low value su	ıvey
101 81 114	Recalculated N $\Delta/\sigma_{\rm s} = ({\rm DCGL-LBGR})/\sigma_{\rm s}$	d N L-LBGR)/o	, o			

# Recalculated N

$\Delta/\sigma_{\rm s} = ({\rm DCGL\text{-}LBGR})/\sigma_{\rm s}$
$\Delta/\sigma_s = (DCGL-LBGR)/\sigma_s$



# (dpm/100 cm²) Beta -122 -163 -51 **Total Surface Activity**

-122 -163 -51 -261 -221 -353 -350 -292	Survey Area - N/A Survey Unit - Exterior Building - T439D Survey Unit Description - Roof ar Total Surface Activity Data Sheet DCGL _w 5000 dpm/100 cm n 28 Mean -236.6 dpm/100 cm Std Dev 173.0 dpm/100 cm	a - N/A t - Exterior 439D t Descripti ce Activity 5000 28 -236.6	xterior 3D scription - Roof and Activity Data Sheet 5000 dpm/100 cm ² 28 -236.6 dpm/100 cm ² 173.0 dpm/100 cm ²	and walls et im²	Survey Area - N/A Survey Unit - Exterior Building - T439D Survey Unit Description - Roof and walls of Trailer T439D Total Surface Activity Data Sheet DCGL _W 5000 dpm/100 cm² n 28 Mean -236.6 dpm/100 cm² Std Dev 173.0 dpm/100 cm²	39D
-180	No measurement exceeds the DCGL _W	ment exc	eeds the D	CGLW		
-299 -254	No measurement exceeds 75% of the the	ement exco	eeds 75%	of the the	DCGLW	
48	Precision					
-336 -336	Location	ŭ	ن	ပုံ ပ	(C,,C,)/2	RPD
-557	A-16N	-51	-196	145		-117.4089
-487	A-18S	-350	86	-448	-126	355.5556
-540	G-1W	-48	85	-133	18.5	-718.9189
-250	G-3R	-49	98	-135	18.5	-729.7297
-49	M-2R	-310	-53	-257	-181.5	141.5978
122						
-408	Precision (R	PD) is out	of specifica	ation due to	Precision (RPD) is out of specification due to low value survey	rvey
-310	measurements	nts				
-356						
-194 -306	Recalculated N	Z D				
-356	$\Delta/\sigma_{\rm s} = ({\rm DCGL\text{-}LBGR})/\sigma_{\rm s}$	ال-LBGR)/م	٠ø			

$\Delta/\sigma_{\rm s} = ({\rm DCGL\text{-}LBGR})/\sigma_{\rm s}$ $\Delta/\sigma_{\rm s} = (5000\text{-}2500)/173.0$	$\Delta/\sigma_{\rm s}$ = 14.45 (default to 3)	Sign p = 0.998650	N = 10.88	10.88*1.2 = 13.05
$\Delta/\sigma_{\rm s} = ({\rm DCG})$ $\Delta/\sigma_{\rm s} = (5000)$	$\Delta/\sigma_{\rm s} = 14.45$	Sign $p = 0.9$	N = 10.88	10 88*1 2 =

N = 14

Survey Area: N/A Survey Unit: ECTERIOR Building: T439D

Survey Unit Description

Park Walls of TRAILER T439D

#### SURVEY SIGNATURE SHEET Removable /Total Surface Activity Performed By 9 FEBOO RCT Printed Name RCT Signature Date 10 FEBOO RCT Printed Name RCT Signature Date Keliey PHO LEBUC RCT Printed Name RCT Signature M.DTTI H. 10 reisec RCT Printed Name RCT Signature Date RCT Printed Name 2316500 RCT Printed Name ZOKEWI **RCT Signature** Date **RCT Printed Name RCT Signature** Date

#### **Quality Control Measurements Performed By**

ARCHIE PARKER		af Park	15 15800
RCT Printed Name		// CRCT Signature	Date
MARK LAWSON		-1 Character	23FEX:0
RCT Printed Name		RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date
-	and the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second s	MA.	
RCT Printed Name	Employee #	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date

Survey Reviewed By

RCT Foreman Printed Name	RCT Foreman Signature	Date
Den Worth		3/0/20
1		

RU



Survey Area: N/A Survey Unit: EXTERIOR Building: TH397D

Survey Unit Description

COF + WALLS OF TRAILER TH397

#### **INSTRUMENT DATA SHEET**

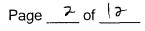
#### **Removable Contamination Survey Instrument Data**

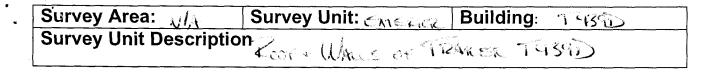
Manufacturer_	Estrine	Skrine	Serine	ERCHUNE _	Esciume	Charle
Model	saey	SACIA	BC-4	5x.4	5×C.4	XY
Inst. ID#	1	2	3	4	5	6
Serial #	214	1467	80920	961	1171	BC961
Cal. Due Date	2.11.00	6-15-00	4.14.00	6.21.00	7.11.00	6.41.00
Analysis Date	9 FEBCC	9 FEBCO	965800	28 PS 200	28850	28 KS
Instrument Bkg(c/m) 10-min count time	0.3	6.2	43.6	E:3	0.2	42.4
Instrument Eff (%)	33.75 3ª	33.3	25	33	33	25
Instrument MDA 2-min count time	8.3	7.5	73	83	-7.5	72

#### **Total Surface Activity Instrument Data**

ufactur	er	N.E.	Tech.	N.E.	Tech.	N.E.	Tech.	Ne		NE			j
Model		Ele	ctra	Ele	ectra	Ele	ectra	eice	TRA	೭.೮	CTRA		
Inst. ID#	0# 7		8		9		10		11			12	
Serial # / P	robe #	1549	1354	1547	1432	1390	1158	234	19124	2310	1956		1
Cal. Due D	ate	6.1	4.00	5.4	. 60	4.2	0.06	ક.વ	. <u>co</u>	5.3	·CO	, A	JA
Survey Dat	e	1000	ASCO	10 16	-36G	10 16	360	1511	ERCO	234	C860		<i>j</i>
Alpha Bkg 90-sec(C2m) count time	Beta Bkg 90-sec(C?m) count time	3.3	489	1.3	503	2.0	475	2.0	465	1.3	527		
Alpha Eff (%)	Beta Eff (%)	18.60	30.11	21.22.	30.12	21.92	29,47	21.54	30.65	22.35	30.36	/	
Alpha MDA 90-sec Apm count time	Beta MDA 90-sec igm count time	46	185	29	283	33	287	33	2.13	21	293	/	

N





#### **INSTRUMENT DATA SHEET**

#### **Removable Contamination Survey Instrument Data**

Manufacturer	Cherino					
Model	180-1					
Inst. ID #	13 +an	2 -2	3	The section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the se	5	6
Serial #	BC 868					and the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second s
Cal. Due Date	9.12.00					and the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of t
Analysis Date	20168CO			A.	The second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of th	
Instrument Bkg 10-min count time	40.9				A	
Instrument Eff (%)	25		and the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second s			
Instrument MDA 2-min count time	71					

#### **Total Surface Activity Instrument Data**

ufactu	rer	N.E.	Tech.	N.E.	Tech.	N.E.	Tech.						
Model		Ele	ctra	Ele	ectra	Ele	ectra						
Inst. ID #			<b></b>	The second segretation	8		9	1	0	1	1	1	2
Serial # / P	robe #												3
Cal. Due D	ate				L		<u> </u>			THE REPORT OF THE PERSON NAMED IN COLUMN	Salar Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control of the Street Control o		
Survey Dat	te						$\overline{N}$	المستنسئين	بالمستشنعة المستشنعة				
Alpha Bkg 90-sec count time	Beta Bkg 90-sec count time							A					
Alpha Eff (%)	Beta Eff (%)												
Alpha MDA 90-sec count time	Beta MDA 90-sec count time												

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Survey Area: NA Survey Unit: EXTERIOR Building: TU30D

Survey Unit Description

Cook + (Character 1 4341)

	Total Surface Activity Data Sheet												
Sample location	RCT ID#	Inst	t ID#		ount time		AB pm)		Count	1	ounts om)		ctivity 00cm2)
		α	β	α	β	α	β	α	β	α	β	α	β
B-1N		9	9	90	90	2.0	486	7.3	450	573	-36	24	-122
8.8%		$C_1$	$C_{i}$	90	90	0.7	509	16, )	461	16.0	· 48	73	-163
A-16N		G	G	90	90	ZC	467	4.7	452	2.7	-15	12	-51
B-95		$C_{l}$	9	90	90	4.0	50	16	440	12.0	-77	ゔゔ゙	-261
A-105		a	$\alpha$	90	90	1-3	438	4.5	418	3.4	~2.0	16	<u>C</u> &
A-125		G	9	90	90	7.0	496	5-3	431	3.3	ر د د د د	15	-221
3-145		Ġ	$G_{i}$	90	90	2.7	509	3.3	405	3.6	-104	3	~ 353
B-165		G	$c_i$	90	90	1.3	4167	47	458	3,4	C	16	~ ŠÌ
A-185		$G_{\parallel}$	q	90	90	6-1	485	4.7	384	4.0	-103	18	-350
B-2E		C	q	90	90	ن ن	509	6.0	423	6.0	-36	27	-292
FZE.		G	9	90	90	3,3	511	6.7	458	3.4	~5"\$	16	~180
3-20		G	9	90	90	7.0	50	12.0	423	10.0	-88	46	299
17-1W		$C_{i}$	G	90	90	2.C	476	6.7	401	4.7	~75	21	-254
C-IW		CI	$c_1$	90	90	1.3	496	60	482	4.7	-14	71	-48
26		$C_{i}$	G	90	90	2. C	481	6,0	509	4.0	28	18	95
B-22		11	11	90	90	1.3	Gis	3477	513	33.4	-102	140	- 336-
B-6R		11	ii.	90	90	2.7	622	20.0	453	17.3	- الن ^{ائ} ة	7.7	-557
C-2R		11	11	90	90	1.3	635	34.0	487	33.4	-148	149	-487
F-4R			11	90	90	2.7	587	4.3	423	6.6	- 1624	30	-540
F-92		11	il	90	90	2.0	567	24.0	વધા	22.0	-76	GE	~750
G-32		ì١	11	90	90	27	519	21.3	504	18.6	-15	83	-49
I-22		11	11	90	90	6.0	458	26.0	495	70.0	37	89	122
K-ZR		11	11	90	90	1.3	635	22.0	511	26/7	-12-1	93	* 40%
M-2R		11	i١	90	90	3,3	583	22.0	489	18.1	-94	84	-310
N-72		11		90	90	1.3	597	14.7	489	13.4	-100	<b>6</b> 0	-356
Q-4R		11	11	90	90	Ċ. 7	526	23.3	461	62.6	-56	101	-194
2-22		11	11	90	90	1.3	577	19.3	YEar	18.0	-93	8i _	3°C
5-1R		11	11	90	90	1.3	563	26.7	475	254	-108	114	-35G
4-1610C		10	10	90	90	හ	456	8.0	396	7.3	-60	34	-196
4185 QC		10	10	90	90	20	110	8.7	449	6.7	30	31	48
G-IWQC		10	10	90	90	3.3	417	100	443	7.4	26	34	65
<u> 312 QC</u>		11	11	90	90	20	461	20.00	487	180	26	81,,,,	€3€3
M-27 QC		11	i i	90	90	1.3	453	1617	437	15.4	-16	-6965	~53
Note		1 1	monto or	0 to be sel	lla ata al lavi					L		C location	L

Note the assurements are to be collected by a different technician than the original survey. Mark the QC location number of "Sample Location" column. Material background is assumed to be zero unless otherwise noted. "LAB" ~ local area background.

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Survey Area: NA Survey Unit: Extreme Building: TYSTD

Survey Unit Description

COF - WALLS OF TRANSLE TYSTD

Sample -ocation	RCT ID#		t ID #		Counts pm)		counts pm)	Removable Activity (dpm/100cm2)		
		α	β	α	β	α	β	α	β	
3-12		1	3	0	30	-03	-13.6	-0.9	-54.4	
182		2	3	1.0	38	0.0	5.6	2.4	-22.4	
762		1	3	0,5	46	0.2	2.4	0,6	4.6	
3-75		<b>Z</b> _	3	0.50	40	0.3	-3.C	0,4	4-14,4	
-105		١	3	C	43	-6.3	Č. 6	-0.9	-2,4	
-125		2	3	C>.5	44	C+3	0.4	0.9	1.6	
-145		1	3	0.5	-16	0,2	2,4	0.6	9.6	
165		2	3	1.0	(4)	0.8	-6.6	2,14	-10.4	
185		1	3	0-5	-10	0.2	~3,6	0.6	-14.4	
,-ZÉ		2	3	<u> </u>	44	-0.2	2.9	-0.6	1.60	
-66		1	3	0	36	(13	-7.6	- O. G	-36.4	
-Zw		2	3	0.5	51	ر ک	7.4	09	29.60	
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# Final Survey NE Electra Scan & Investigation Survey Form (Continuation Sheet)

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Results/Comments:

Electra alpha scans were performed at the locations detailed on the survey map(s). All required accessible areas were scanned. All initial scan results were <225 dpm/100cm², unless noted on the survey form.

Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the survey form.

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Electra alpha scans were performed at the locations detailed on the survey map(s). All required accessible areas were scanned. All initial scan results were <225 dpm/100cm², unless noted on the survey form.

Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the survey form.

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Results/Comments:

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Electra alpha scans were performed at the locations detailed on the survey map(s). All required accessible areas were scanned. All initial scan results were <225 dpm/100cm², unless noted on the survey form.

Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the survey form.

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Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the survey form.

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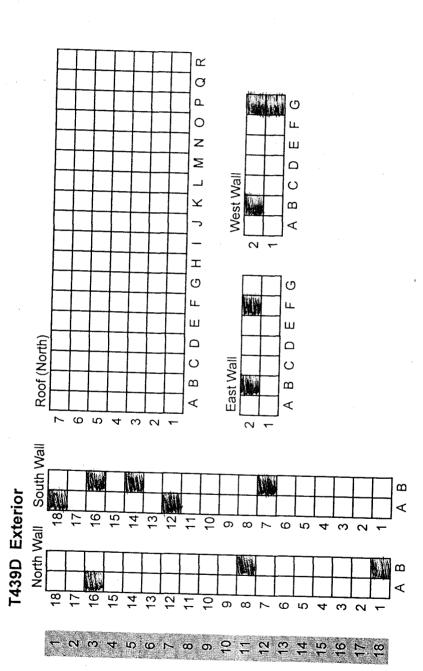
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Attachment to RSFORMS-16.01-10 SURVEY PACKAGE SURVEY MAP

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Survey Unit: Exterior Package ID: 2000-01 Building: T439D

SCAL LOCATIONS



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#### **SURVEY SIGNATURE SHEET**

#### Removable /To al Surface Activity Performed By

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#### **Quality Control Measurements Performed By**

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#### **INSTRUMENT DATA SHEET**

#### Removable Contamination Survey Instrument Data

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#### **Total Surface Activity Instrument Data**

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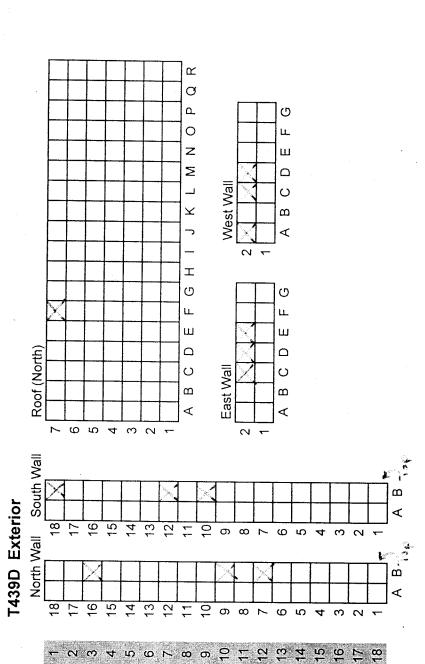
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Page 14 of 15

Package ID: 2000-01 Building: T439D Survey Unit: Exterior



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Survey Area:	Survey Unit:	Building:
urvey Unit Description:		1.0860
CT Initials/Date:	RCT Initials/Date:	RCT Initials/Date: NA
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Legend: "R"- Roof, "W" -	West Wall, "S" - South Wall, "E" -	East Wall, "N" - North Wall
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* Designates corner closest to A-1 point of reference Results/Comments:

Rev. 020900

Electra alpha scans were performed at the locations detailed on the survey map(s). All required accessible areas were scanned. All initial scan results were <225 dpm/100cm², unless noted on the survey form.

Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the survey form.

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Survey Area:	NA	Survey Unit:	ERIÓR	Building: Ta	139D			
Survey Unit I	Description:	IALLS ROOF						
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	Refer to the Final Survey NE Electra Scan & Investigation Survey Form for instrumentation, surveyor & approval information.  Legend: "R"-Roof, "W"-West Wall, "S"-South Wall, "E"-East Wall, "N"-North Wall							
Leg	gend: "R"- Roof, "W" -	· West Wall, "S" – Sou "C" –Ceiling,	ıth Wall, "E" – l "F" - Floor	East Wall, "N" – Nort	h Wâll			
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Electra alpha scans were performed at the locations detailed on the survey map(s). All required accessible areas were scanned. All initial scan results were <225 dpm/100cm², unless noted on the survey form.

Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the survey form.

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Call

## Final Survey NE Electra Scan & Investigation Survey Map

Survey Area:	Survey Unit: EXTERIOR	Building: 742GD
Survey Unit Description:	^	
8000	RCT Initials/Date:	RCT Initials/Date: NA
Refer to the Final Survey NE Electra Scan & I	nvestigation Survey Form for instrumenta	tion, surveyor & approval information.
Legend: "R"-Roof, "W"-V	Vest Wall, "S" – South Wall, "E" – "C" –Ceiling, "F" - Floor	-East Wall, "N" – North Wall
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* Designates corner closest to A-1 point		

Recults/Comments:

Electra alpha scans were performed at the locations detailed on the survey map(s). All required accessible areas were scanned. All initial scan results were <225 dpm/100cm², unless noted on the survey form.

Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the survey form.

## Final Survey NE Electra Scan & Investigation Survey Form

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F-7RB				7.14		and the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of th	NÅ.	NA	110.3
F.78c		7	<i>A</i> )			<b>S</b>	MA	A.C.	116.3
8-7e.D		1	<b>6</b>	n) A			NA	NA	149.0
F.7RE		1		A. A.		*	NA	A)Á	1,3.5
F.7RF						**************************************		NA.	10009
F-7RG		7		Ŷ.		. *	NX	NÅ	140.0
F-724		7	energian.				\\\Å	NA	116.3
F-7721		1					NA.	MA	1951
B.16N1		8	N	N/A		8	<u> </u>	24	N/A
B.16N2		2	N	NA		D	У	12	N/A
B.9N 1		92.	N	N/A		9	У	10	N/M
B.9N.2		2	N	NA		8	У	12	N/A
B.9N.3		2	N	NA		W	У	18	NA
B.7N 1		2	N	NA		80	У	24	N/A
B.7N.2		2	N	N/A		8	У	12	NA
B.7N.3		20	<b>N</b>	NIA		28,2	w Y	16	NA



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Page

## Final Survey NE Electra Scan & Investigation Survey Form (Continuation Sheet)

Survey	Area:	NA		Survey U	nit: FVI	ERION	7	Building: T43	<i>a</i> n
Survey	Unit Des	scription:						1 43	<u>'טי</u>
		El	ectra DP-6 B	WAUS,	KUUF		Electra L	P-6 Alpha	· · · · · · · · · · · · · · · · · · ·
Loc. ID#	RCT ID#	Inst. ID#	Elevated Audible observed? "Y" or "N"	60-sec PAT (dpm/100cm2)	RCT ID#	Inst. ID#	4-sec Audible observed? "Y" or "N"	30-sec Static (gcpm)	90-sec PAT (dpm/100cm ² )
B.2W.1		20	N	N/A		20	Y	12	NA
B.2W.2		E	N	N/A		4	Y	8	N/A
C.2W 1		2	N	N/M		V	У	10	NA
C.2W 2		2	N	N/A		80	У	10	NIA
D.2W1		80	N	NIA		20	¥	4	NA
D.2W 2		2	N	NIN		W	Y	4	NIA
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Page of

Survey Area: N/A Survey Unit: EXTERIM Building: 74390 **Survey Unit Description** EXTERIOR OC CHECK

## **SURVEY SIGNATURE SHEET**

## Removable /Total Surface Activity Performed By

		-
Employee #	RCT Signature	Date
Employee #	RCT Signature	Date
·		
Employee #	RCT Signature	Date
N		
Employee #	RCT Signature	Date
Employee #	RCT Signature	Date
Employee #	RCT Signature	Date
Employee #	RCT Signature	Date
	Employee #  Employee #  Employee #  Employee #	Employee # RCT Signature  Employee # RCT Signature  Employee # RCT Signature  Employee # RCT Signature  Employee # RCT Signature

## **Quality Control Measurements Performed By**

Archie Parlor		afach	3-8-00
RCT Printed Name		( ) RCT Signature	Date
· .			
RCT Printed Name	Employee #	RCT Signature	Date
	N		
RCT Printed Name	Employee #	RCT Signature	Date
		A	
RCT Printed Name	Employee #	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date

## Survey Reviewed By

RCT Foreman Printed Name	RCT Foreman Signature	Date
Kon Worester		3-13-00
	7	



Survey Area: NA Survey Unit: EXTERIOR Building: 7439D

Survey Unit Description

EXTERIOR

## **INSTRUMENT DATA SHEET**

## **Removable Contamination Survey Instrument Data**

Manufacturer						
Model						
Inst. ID#	1	2	3	4	5	6
Serial #						
Cal. Due Date						
Analysis Date						
Instrument Bkg pm 10-min count time			A			
Instrument Eff (%)						
Instrument MDA 2-min count time d ₁ m						

## **Total Surface Activity Instrument Data**

Manufactur	er	N.E.	Tech.	N.E.	Tech.	N.E.	Tech.						
Model		Elec	ctra	Ele	ctra	Ele	ctra		•				
Inst. ID#		7	7		8	·	9	1	0	. 1	1	1	2
Serial # / P	robe #	2378	1956										
Cal. Due D	ate	53					. )						
Survey Dat	е		2:00				$\sim$						
Alpha Bkg 90-sec com count time	Beta Bkg 90-sec cpm count time	2.0	517					Ø					
Alpha Eff (%)	Beta Eff (%)	22.35	30.32										
Alpha MDA 90-sec Apr count time	Beta MDA 90-sec dpm count time	32.1	2905										

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## Final Survey NE Electra Scan & Investigation Survey Form

Survey	- 1	VIA	and the second second second second second second second second second second second second second second second	Survey Un	nit: EXT	ERIOY		Building: T439	D
Survey	Unit Des	cription:		EXTER	100	$\Omega$	CHECK Electra Di		
		Ele	ectra DP-6 Be	eta			Electra D	P-6 Alpha	
Loc. ID#	RCT ID#	Inst. ID#	Elevated Audible observed? "Y" or "N"	60-sec PAT (dpm/100cm2)	RCT ID#	Inst. ID#	4-sec Audible observed? "Y" or "N"	30-sec Static (gcpm)	90-sec PAT (dpm/100cm ² )
A.12.S		-	N	N/A		7	N	NA	NA
		-							
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Survey Area: N/A	Survey Unit: Building:	T435D
Survey Unit Description	n	
	KOCK SAMPLE LOCATION	

## **SURVEY SIGNATURE SHEET**

## Removable /Total Surface Activity Performed By

NARK LANDSON		A CACO	3.2%-co
Town Rock Printed Name		Jun Ble	3-28-60
Azems Phares		RCT Signature	Date   3-29-00
RCT Printed Name		RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date
RCT Printed Name	Employee#	RCT Signature	Date
		A	
RCT Printed Name	Employee #	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date

## **Quality Control Measurements Performed By**

	·		
RCT Printed Name	Employee #	RCT Signature	Date
RCT Printed Name	Employee #	RCT Signature	Date
	1		
RCT Printed Name	Employee #	RCT Signature	Date
		N. S.	
RCT Printed Name	Employee #	RCT Signature	Date
	-		
RCT Printed Name	Employee #	RCT Signature	Date

Survey Reviewed By

SCHAT

RCT Foreman Printed Name

3-29- 20

RCT Foreman Signature

Date

## Final Survey NE Electra Scan & Investigation Survey Map

		C		L	
Survey Area:	NA	Survey Unit:	8 10 <b>8</b>	Building:	39D
Survey Unit D	)ascription:				<u> </u>
		• ,	ZNONS		
RCT Initials/I	Date: 100 3/28/00	RCT Initials/Date:	A	RCT Initials/Date	: NA
Refer to the Fin	nal Survey NE Electra Scan & Ir	vestigation Survey Form fo	r instrumentation, su	rveyor & approval inf	formation.
Leg	gend: "R"- Roof, "W" – W			Wall, "N" - North	Wall
		"C" -Ceiling, "F"	- Floor		
			•		
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	S-IR				
	⊗				
•					
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Se Ca					

* Designates corner closest to A-1 point of reference Results/Comments:

Electra alpha scans were performed at the locations detailed on the survey map(s). All required accessible areas were scanned. All initial scan results were <225 dpm/100cm², unless noted on the survey form.

Electra beta scans were performed in required accessible areas. Initial scan results indicated no detectable activity above background unless noted on the survey form.

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Survey Area: NA	Survey Unit:	Exterior	Building: T439D	
Survey Unit Descrip	tion			
	Roof Sample Locat	ion		

## **INSTRUMENT DATA SHEET**

## **Removable Contamination Survey Instrument Data**

Manufacturer	EBERLINE	EBERLINE	EBERLINE	EBERLINE		
Model	SAC4	BC4	SAC4	BC4		
Inst. ID #	1	2	3	4	5	6-/
Serial #	823	966	1171	868		
Cal. Due Date	9/6/00	9/15/00	7/11/00	7/12/00		
Analysis Date	3/28/00	3/28/00	3/28/00	3/28/00		
Instrument Bkg. 10-min count time	0.5	42.9	0.3	35.2	J.	
Instrument Eff (%)	33	25	33	25		
Instrument MDA 2-min count time	9.6	72.2	8.3	65.9	#DIV/0!	#DIV/0!

## **Total Surface Activity Instrument Data**

Manufact	urer	N.E.	Гесh.	N.E.	Гесh.	N.E.	Гесh.	N.E.	Гесн				
Model		Elec	ctra	Elec	ctra	Elec	ctra	Elec	ctra			n de la companya de la companya de la companya de la companya de la companya de la companya de la companya de	, ESTALATION
Inst. ID #		•	7	· ·	3	Ç	)	1	0	1	1	1	2
Serial # / I	Probe #	2374	1919	2376	1921								
Cal. Due [	ate	9/8	/00	8/23	3/00					Je ⁴			
Survey Da	ite	3/2	7/00	3/27	7/00				,	i Servente			
Alpha Bkg 90-sec count time	Beta Bkg 90 sec count time	4	433	1.3	384				Berlin Barbara Barbara Barbara Barbara Barbara Barbara Barbara Barbara Barbara Barbara Barbara Barbara Barbara				
Alpha Eff (%)	Beta Eff (%)	20.85	29.89	20.46	29.7			grand the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of					
90-sec	Beta MDA 90-sec count time	45.1	271	30.0	257	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!



Survey Area: NA Survey Unit: EXTERIOR Building: T439D

Survey Unit Description

ROOF SAMPLE LOCATIONS

			Tot	al Su	urfac	e A	ctivi	ty D	ata	She	et		
Sample location	RCT ID	Inst	ID#		ount time ec)		Count om)	1	AB om)	Net c		Net Ao (dpm/1	
<u> </u>		α	β	α	β	α	β	α	β	α	β	α	β
PRE				90	90					0.0	0	0.0	0
S-1R		7	7	90	90	41.3	478	0.7	489	40.6	-11	194.7	-37
POST				90	90					0.0	0	0.0	0
S-1R		7	7	90	90	24.7	478	0.7	469	24.0	9	115.1_	30
PRE			ļ	90	90					0.0	0	0.0	0
S-1R QC		8	8	90	90	36.0	519	1.3	384	34.7	135	169.6	455
POST				90	90					0.0	0	0.0	0
S-1R QC	<b>.</b>	8	8	90	90	28.0	461	0.7	389	27.3	72	133.4	242
PRE				90	90					0.0	0	0.0	0
F-7R		7	7	90	90	26.0	482	6.7	415	19.3	67	92.6	224
POST				90	90					0.0	0	0.0	0
F-7R		7	7	90	90	17.3	453	0.0	416	17.3	37	83.0	124
				90	90					0.0	0	0.0	0
			<u></u>	90	90					0.0	0	0.0	0
				90	90					0.0	0	0.0	0
		_=		90	90					0.0	0	0.0	0
				90	90	*				0.0	0,	0.0	0
				90	90					0.0	0	0.0	0
				90	90			/		0.0	0	0.0	0
				90	90		AZ			0.0	0	0.0	0
			<u> </u>	90	90					0.0	0	0.0	0
				90	90		<i>'</i>			0.0	0	0.0	0
				90	90			4		0.0	0	0.0	0
				90	90		- U			0.0	0	0.0	0
				90	90					0.0	0	0.0	0
				90	90			•		0.0	0	0.0	0
				90	90					0.0	0	0.0	0
				90	90					0.0	0	0.0	0
QC				90	90					0.0	0	0.0	0
QC				90	90		-			0.0	0	0.0	0
QC				90	90					0.0	0	0.0	0
QC				90	90					0.0	0	0.0	0
QC				90	90					0.0	0	0.0	0

**Note**: QC measurements are to be collected by a different technician than the original survey. Mark the QC location number in the "Sample Location" column. Material background is assumed to be zero unless otherwise noted. "LAB"  $\sim$  local area background. Page  $\frac{\mathcal{U}}{}$  of  $\frac{\mathcal{S}}{}$ 

Survey Area: NA Survey Unit: EXTERIOR Building: T439D
Survey Unit Description ROOF SAMPLE LOCATIONS

		RE	ome	vable C	ontami	nation	Data Sr	ieet	
Sample location	RCT ID		t ID #	Gross Counts	(gcpm)		Counts cpm)		ole Activity 00cm2)
		α	β	α	β	α	β	α	β
PRE						0	0	0.0	0
S-1R		1	_ 2	0	33.5	-0.5	-9.4	-1.5	-38
POST						0	0	0.0	0
S-1R		3	4	2	38	1.7	2.8	5.2	11
PRE						0	0	0.0	0
S-1R QC		1	_ 2	0.5	43.5	0	0.6	0.0	2
POST						0	0	0.0	0
S-1R QC		3	4	0	41	-0.3	5.8	-0.9	23
PRE						0	0	0.0	_0
F-7R		1	2	0 -	42	-0.5	-0.9	-1.5	-4
POST						0	0	0.0	0
F-7R		3	4	0	41	-0.3	5.8	-0.9	23
						0	0	0.0	0
		,				0	0	0.0	0/
						0	0	0.0	/0
						0	0	0.0	0
			Α.			0	0	0.0	0
			1			0	0	0.6	0
						0	0	0.0	0
						0	0 /	0.0	0
						0	9	0.0	0
						0	0	0.0	0
						0	0	0.0	0
				1		0/	0	0.0	0
			1			/0	0	0.0	0
						0	0	0.0	0
						0	0	0.0	0
						0	0	0.0	0
						0	0	0.0	0
						0	0	0.0	0
						0	0	0.0	0
					14	0	0	0.0	0
			/			0	0	0.0	0
						0	0	0.0	0
						0	0	0.0	0
						0	0	0.0	0
						0	0	0.0	0
						0	0	0.0	0
	1					0	0	0.0	0
						0	0	0.0	0
						0	0	0.0	0



# 4.0 CHARACTERIZATION INSTRUCTION FOR NON-RADIOLOGICAL INSPECTION AND SAMPLING

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Rev 0

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Survey Area: N/A	Survey Unit: N/A	Building: T-881A	
Survey Unit Descrip	otion		

CHARACTERIZATION INSTRUCTION COVER SHEET

## T-881A

Characterization Package

Non-Radiological Concerns: Friable asbestos, Leaking PCB ballasts

## **Special Support Requirements**

Ladder, scaffolding, or man-lift. CDPHE-certified asbestos inspector for inspections and sampling. RCTs to support sampling operations.

## **Special Safety Precautions**

Fall protection is required for work above 6 ft. Respiratory protection at the discretion of IH. Access to roofs, stairs, or elevated structures may require additional approvals from security personnel. Refer to Activity Hazards Analysis and 3-PRO-165-RSP-07.02, "Contamination Monitoring Requirements"

## **Labeling Requirements**

Sample containers must be labelled as described in the applicable Characterization Procedure. Obtain preprinted, uniquely numbered sample labels from ASD or RLC project representative if applicable.

## **Characterization Instruction Implementation**

This survey package is ready for implementation. Adequate detail is provided to allow implementation by the sampling team. DQO's and data evaluation requirements are covered in the *Decontamination* and *Decommissioning Characterization Protocol*, MAN-077-DDCP.

Paul A. Wojtaszek	Park A Worker	34/61/20
Preparer Printed Name	Preparer Signature	Date
Mac Groves		2.7.00
Quality Assurance Reviewer Printed Name	Quality Assurance Reviewer Signature	Date

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Survey Area: N/A	Survey Unit: N/A	Building: T-881A	
Survey Unit Descrip	otion		

Characterization Package

## **SAMPLING AND SURVEY INSTRUCTIONS**

Measurement	Amount & Type	Comments
Media samples for asbestos analysis	At discretion of asbestos inspector. Sample only if suspect material is friable.  SEE NOTES 1 AND 2.	Sampler SHALL be a CDPHE Certified Asbestos Inspector; Sampling SHALL be performed according to PRO-563-ACPR, Asbestos Characterization Procedure; Inspection will determine precise sampling locations based upon accessibility. Sampler SHALL provide a map or sketch of precise sample locations and media (i.e., show pipes, ducts, etc)
Inspection of fluorescent light ballast for leaking PCB ballasts	All fluorescent light fixtures.	Leaking ballasts must be removed prior to disposition/resale/reuse by certified individuals.

**NOTE 1**: In order that sampling locations may be unequivocally located after sample analysis, sampling locations **SHALL** be documented on sample maps as well as the appropriate logs as required by the applicable characterization procedure, **AND** the sample location **SHALL** be physically marked either with a sticker or other durable marking containing the RIN, event, and bottle numbers (or if an IH sample, the IH sample number) of the sample.

**NOTE 2:** A Property / Waste Release Evaluation (P/WRE) is required for all analytical samples to be transported offsite for analysis. However, the instructions for RCTs and Radiological Operations Foreman in the following sections may be waived if it is deemed by Radiological Engineering (Arlan Moore) that no assay is required due to building history and process knowledge, per 3-PRO-141-RSP 09.01, *Unrestricted Release of Property, Material, Equipment, and Waste.* 

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#### T881A

## ASBESTOS INSPECTOR'S REPORT

General Facility Location: northeast of Building 881.

#### **INSPECTION RESULTS**

Trailer 881A did not contain any suspect friable asbestos containing materials and no samples were collected. The duct system is lined internally with fiberglass, but samples were not collected based on visual observation identifying the material as fiberglass. Fiberglass insulation was found throughout the walls.

**SAMPLE RESULTS** 

None required; none taken.

**INSPECTOR'S NAME** 

Andre Gonzelez

**SIGNATURE** 

DATE

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Survey Area: N/A	Survey Unit: N/A	Building: T-881B	
Survey Unit Descrip Characterization Package	otion		
Characterization Fackage			

## CHARACTERIZATION INSTRUCTION COVER SHEET

#### T-881B

Non-Radiological Concerns: Friable asbestos, Leaking PCB ballasts

## **Special Support Requirements**

Ladder, scaffolding, or man-lift. CDPHE-certified asbestos inspector for inspections and sampling. RCTs to support sampling operations.

## **Special Safety Precautions**

Fall protection is required for work above 6 ft. Respiratory protection at the discretion of IH. Access to roofs, stairs, or elevated structures may require additional approvals from security personnel. Refer to Activity Hazards Analysis and 3-PRO-165-RSP-07.02, "Contamination Monitoring Requirements"

## **Labeling Requirements**

Sample containers must be labelled as described in the applicable Characterization Procedure. Obtain preprinted, uniquely numbered sample labels from ASD or RLC project representative if applicable.

## **Characterization Instruction Implementation**

This survey package is ready for implementation. Adequate detail is provided to allow implementation by the sampling team. DQO's and data evaluation requirements are covered in the *Decontamination* and *Decommissioning Characterization Protocol*, MAN-077-DDCP.

Paul A. Wojtaszek	Part A Hispory - 3	02/21/20
Preparer Printed Name	Preparer Signature	Date
MARIC GUARS	to the said	2.100
Quality Assurance Reviewer Printed Name	Quality Assurance Reviewer Signature	Date

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223 of 242 4.5 RO

Survey Area: N/A	Survey Unit: N/A	Building: T-881B	
Survey Unit Descrip Characterization Package	tion		

## SAMPLING AND SURVEY INSTRUCTIONS

Measurement	Amount & Type	Comments
Media samples for asbestos analysis	At discretion of asbestos inspector. Sample only if suspect material is friable. SEE NOTES 1 AND 2.	Sampler SHALL be a CDPHE Certified Asbestos Inspector; Sampling SHALL be performed according to PRO-563-ACPR, Asbestos Characterization Procedure; Inspection will determine precise sampling locations based upon accessibility. Sampler SHALL provide a map or sketch of precise sample locations and media (i.e., show pipes, ducts, etc)
Inspection of fluorescent light ballast for leaking PCB ballasts	All fluorescent light fixtures.	Leaking ballasts must be removed prior to disposition/resale/reuse by certified individuals.

**NOTE 1**: In order that sampling locations may be unequivocally located after sample analysis, sampling locations **SHALL** be documented on sample maps as well as the appropriate logs as required by the applicable characterization procedure, **AND** the sample location **SHALL** be physically marked either with a sticker or other durable marking containing the RIN, event, and bottle numbers (or if an IH sample, the IH sample number) of the sample.

**NOTE 2:** A Property / Waste Release Evaluation (P/WRE) is required for all analytical samples to be transported offsite for analysis. However, the instructions for RCTs and Radiological Operations Foreman in the following sections may be waived if it is deemed by Radiological Engineering (Arlan Moore) that no assay is required due to building history and process knowledge, per 3-PRO-141-RSP 09.01, *Unrestricted Release of Property, Material, Equipment, and Waste.* 



### T881B

## ASBESTOS INSPECTOR'S REPORT

I, the undersigned Certified Asbestos Inspector, certification in the state of Colorado, attest to the asbestos inspection and sampling results as described below, for the following facility (at RFETS): Trailer 881B

General Facility Location: northeast of Building 881.

#### **INSPECTION RESULTS**

Trailer 881B is identical to T881A and did not contain any suspect friable asbestos containing materials and no samples were collected.

#### **SAMPLE RESULTS**

None required; none taken.

**INSPECTOR'S NAME** 

**SIGNATURE** 

DATE

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Survey Area: N/A	Survey Unit: N/A	Building: T-883A
<b>Survey Unit Description</b>	n	
Characterization Package		

## CHARACTERIZATION INSTRUCTION COVER SHEET

#### T-883A

Non-Radiological Concerns: Friable asbestos, Leaking PCB ballasts

## **Special Support Requirements**

Ladder, scaffolding, or man-lift. CDPHE-certified asbestos inspector for inspections and sampling. RCTs to support sampling operations.

## **Special Safety Precautions**

Fall protection is required for work above 6 ft. Respiratory protection at the discretion of IH. Access to roofs, stairs, or elevated structures may require additional approvals from security personnel. Refer to Activity Hazards Analysis and 3-PRO-165-RSP-07.02, "Contamination Monitoring Requirements"

## Labeling Requirements

Sample containers must be labelled as described in the applicable Characterization Procedure. Obtain preprinted, uniquely numbered sample labels from ASD or RLC project representative if applicable.

## **Characterization Instruction Implementation**

This survey package is ready for implementation. Adequate detail is provided to allow implementation by the sampling team. DQO's and data evaluation requirements are covered in the *Decontamination* and *Decommissioning Characterization Protocol*, MAN-077-DDCP.

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Preparer Printed Name	Preparer Signature	Date
Mark Vauks	Chin Tall 1988	2.1.00
Quality Assurance Reviewer Printed Name	 Quality Assurance Reviewer Signature	Date

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Survey Area: N/A	Survey Unit: N/A	Building: T-883A	
Survey Unit Descrip Characterization Package	tion		

## SAMPLING AND SURVEY INSTRUCTIONS

Measurement	Amount & Type	Comments
Media samples for asbestos analysis	At discretion of asbestos inspector. Sample only if suspect material is friable. SEE NOTES 1 AND 2.	Sampler SHALL be a CDPHE Certified Asbestos Inspector; Sampling SHALL be performed according to PRO-563-ACPR, Asbestos Characterization Procedure; Inspection will determine precise sampling locations based upon accessibility. Sampler SHALL provide a map or sketch of precise sample locations and media (i.e., show pipes, ducts, etc)
Inspection of fluorescent light ballast for leaking PCB ballasts	All fluorescent light fixtures.	Leaking ballasts must be removed prior to disposition/resale/reuse by certified individuals.

**NOTE 1**: In order that sampling locations may be unequivocally located after sample analysis, sampling locations **SHALL** be documented on sample maps as well as the appropriate logs as required by the applicable characterization procedure, **AND** the sample location **SHALL** be physically marked either with a sticker or other durable marking containing the RIN, event, and bottle numbers (or if an IH sample, the IH sample number) of the sample.

**NOTE 2:** A Property / Waste Release Evaluation (P/WRE) is required for all analytical samples to be transported offsite for analysis. However, the instructions for RCTs and Radiological Operations Foreman in the following sections may be waived if it is deemed by Radiological Engineering (Arlan Moore) that no assay is required due to building history and process knowledge, per 3-PRO-141-RSP 09.01, *Unrestricted Release of Property, Material, Equipment, and Waste.* 

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#### T883A

## ASBESTOS INSPECTOR'S REPORT

I, the undersigned Certified Asbestos Inspector, certification # _ _ _ in the state of Colorado, attest to the asbestos inspection and sampling results as described below, for the following facility (at RFETS): Trailer 883A.

General Facility Location: north-northeast of Building 881.

#### **INSPECTION RESULTS**

Trailer 883A contains friable ceiling tile. Fiberglass insulation was found throughout the walls. The following table summarizes the results of the samples collected and the percent and type of asbestos detected:

#### **SAMPLE RESULTS**

Sample Number	Material Sampled & Location	Analytical Results
T883A-03012000-05- 001	Miscellaneous material: 2' x 4' white ceiling tile. Coordinate D4C	None Detected
T883A-03012000-05- 002	Miscellaneous material: 2' x 4' white ceiling tile. Coordinate C12C	None Detected

**INSPECTOR'S NAME** 

Andre Gonzalez

**SIGNATURE** 

DATE

Survey Area: N/A	Survey Unit: N/A	Building: T-883B	
<b>Survey Unit Descrip</b>	tion		
Characterization Package			

## **CHARACTERIZATION INSTRUCTION COVER SHEET**

#### T-883B

Non-Radiological Concerns: Friable asbestos, Leaking PCB ballasts

## **Special Support Requirements**

Ladder, scaffolding, or man-lift. CDPHE-certified asbestos inspector for inspections and sampling. RCTs to support sampling operations.

## **Special Safety Precautions**

Fall protection is required for work above 6 ft. Respiratory protection at the discretion of IH. Access to roofs, stairs, or elevated structures may require additional approvals from security personnel. Refer to Activity Hazards Analysis and 3-PRO-165-RSP-07.02, "Contamination Monitoring Requirements"

## **Labeling Requirements**

Sample containers must be labelled as described in the applicable Characterization Procedure. Obtain preprinted, uniquely numbered sample labels from ASD or RLC project representative if applicable.

## **Characterization Instruction Implementation**

This survey package is ready for implementation. Adequate detail is provided to allow implementation by the sampling team. DQO's and data evaluation requirements are covered in the *Decontamination* and *Decommissioning Characterization Protocol*, MAN-077-DDCP.

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Paul A. Wojtaszek	Jan Jan Jan Jan Jan Jan Jan Jan Jan Jan	02/6/1/20
Preparer Printed Name	Preparer Signature	Date
Mark Gay		2 1920
Quality Assurance Reviewer Printed Name	Quality Assurance Reviewer Signature	Date

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Survey Area: N/A	Survey Unit: N/A	Building: T-883B	·
Survey Unit Descript Characterization Package	tion		

## **SAMPLING AND SURVEY INSTRUCTIONS**

Measurement	Amount & Type	Comments
Media samples for asbestos analysis	At discretion of asbestos inspector. Sample only if suspect material is friable. SEE NOTES 1 AND 2.	Sampler SHALL be a CDPHE Certified Asbestos Inspector; Sampling SHALL be performed according to PRO-563-ACPR, Asbestos Characterization Procedure; Inspection will determine precise sampling locations based upon accessibility. Sampler SHALL provide a map or sketch of precise sample locations and media (i.e., show pipes, ducts, etc)
Inspection of fluorescent light ballast for leaking PCB ballasts	All fluorescent light fixtures.	Leaking ballasts must be removed prior to disposition/resale/reuse by certified individuals.

**NOTE 1**: In order that sampling locations may be unequivocally located after sample analysis, sampling locations **SHALL** be documented on sample maps as well as the appropriate logs as required by the applicable characterization procedure, **AND** the sample location **SHALL** be physically marked either with a sticker or other durable marking containing the RIN, event, and bottle numbers (or if an IH sample, the IH sample number) of the sample.

**NOTE 2:** A Property / Waste Release Evaluation (P/WRE) is required for all analytical samples to be transported offsite for analysis. However, the instructions for RCTs and Radiological Operations Foreman in the following sections may be waived if it is deemed by Radiological Engineering (Arlan Moore) that no assay is required due to building history and process knowledge, per 3-PRO-141-RSP 09.01, *Unrestricted Release of Property, Material, Equipment, and Waste.* 

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#### T883B

## ASBESTOS INSPECTOR'S REPORT

I, the undersigned Certified Asbestos Inspector, certification # in the state of Colorado, attest to the asbestos inspection and sampling results as described below, for the following facility (at RFETS): Trailer 883B.

General Facility Location: north-northeast of Building 881.

#### **INSPECTION RESULTS**

Trailer 883B contains friable ceiling tile. Fiberglass insulation was found throughout the walls. The following table summarizes the results of the samples collected and the percent and type of asbestos detected:

#### SAMPLE RESULTS

Sample Number	Material Sampled & Location	Analytical Results
T883B-03012000-05- 003	Miscellaneous material: 2' x 4' white ceiling tile. Coordinate C2C	None Detected
T883B-03012000-05- 004	Miscellaneous material: 2' x 4' white ceiling tile. Coordinate C6C	None Detected

**INSPECTOR'S NAME** 

Andre Gonzalez

**SIGNATURE** 

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DATE

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Survey Area: N/A	Survey Unit: N/A	Building: T-883C	
Survey Unit Descrip	tion		
Characterization Package			

## CHARACTERIZATION INSTRUCTION COVER SHEET

#### T-883C

Non-Radiological Concerns: Friable asbestos, Leaking PCB ballasts

## **Special Support Requirements**

Ladder, scaffolding, or man-lift. CDPHE-certified asbestos inspector for inspections and sampling. RCTs to support sampling operations.

## **Special Safety Precautions**

Fall protection is required for work above 6 ft. Respiratory protection at the discretion of IH. Access to roofs, stairs, or elevated structures may require additional approvals from security personnel. Refer to Activity Hazards Analysis and 3-PRO-165-RSP-07.02, "Contamination Monitoring Requirements"

## **Labeling Requirements**

Sample containers must be labelled as described in the applicable Characterization Procedure. Obtain preprinted, uniquely numbered sample labels from ASD or RLC project representative if applicable.

## **Characterization Instruction Implementation**

This survey package is ready for implementation. Adequate detail is provided to allow implementation by the sampling team. DQO's and data evaluation requirements are covered in the *Decontamination* and *Decommissioning Characterization Protocol*, MAN-077-DDCP.

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Preparer Printed Name	Preparer Signature	Date
Mark Fraks	The there was the	2.19
Quality Assurance Reviewer Printed Name	Quality Assurance Reviewer Signature	Date

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Survey Area: N/A	Survey Unit: N/A	Building: T-883C	
Survey Unit Descrip Characterization Package	otion		

## SAMPLING AND SURVEY INSTRUCTIONS

Measurement	Amount & Type	Comments
Media samples for asbestos analysis	At discretion of asbestos inspector. Sample only if suspect material is friable.  SEE NOTES 1 AND 2.	Sampler SHALL be a CDPHE Certified Asbestos Inspector; Sampling SHALL be performed according to PRO-563-ACPR, Asbestos Characterization Procedure; Inspection will determine precise sampling locations based upon accessibility. Sampler SHALL provide a map or sketch of precise sample locations and media (i.e., show pipes, ducts, etc)
Inspection of fluorescent light ballast for leaking PCB ballasts	All fluorescent light fixtures.	Leaking ballasts must be removed prior to disposition/resale/reuse by certified individuals.

**NOTE 1**: In order that sampling locations may be unequivocally located after sample analysis, sampling locations **SHALL** be documented on sample maps as well as the appropriate logs as required by the applicable characterization procedure, **AND** the sample location **SHALL** be physically marked either with a sticker or other durable marking containing the RIN, event, and bottle numbers (or if an IH sample, the IH sample number) of the sample.

**NOTE 2:** A Property / Waste Release Evaluation (P/WRE) is required for all analytical samples to be transported offsite for analysis. However, the instructions for RCTs and Radiological Operations Foreman in the following sections may be waived if it is deemed by Radiological Engineering (Arlan Moore) that no assay is required due to building history and process knowledge, per 3-PRO-141-RSP 09.01, *Unrestricted Release of Property, Material, Equipment, and Waste.* 

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#### T883C

## ASBESTOS INSPECTOR'S REPORT

I, the undersigned Certified Asbestos Inspector, certification # _______ in the state of Colorado, attest to the asbestos inspection and sampling results as described below, for the following facility (at RFETS): Trailer 883C.

General Facility Location: north-northeast of Building 881.

### **INSPECTION RESULTS**

Trailer 883C contains friable ceiling tile. Fiberglass insulation was found throughout the walls. Results are summarized below.

#### **SAMPLE RESULTS**

Sample Number	Material Sampled & Location	Analytical Results
T883C-03012000-05- 005	Miscellaneous material: 2' x 4' white ceiling tile. Coordinate D1C	None Detected
T883C-03012000-05- 006	Miscellaneous material: 2' x 4' white ceiling tile. Coordinate C10C	None Detected

INSPECTOR'S NAME

**SIGNATURE** 

Survey Area: N/A	Survey Unit: N/A	Building: T-439A	
Survey Unit Descrip Characterization Package	tion		

## CHARACTERIZATION INSTRUCTION COVER SHEET

#### T-439A

Non-Radiological Concerns: Friable asbestos, Leaking PCB ballasts

## **Special Support Requirements**

Ladder, scaffolding, or man-lift. CDPHE-certified asbestos inspector for inspections and sampling. RCTs to support sampling operations.

## **Special Safety Precautions**

Fall protection is required for work above 6 ft. Respiratory protection at the discretion of IH. Access to roofs, stairs, or elevated structures may require additional approvals from security personnel. Refer to Activity Hazards Analysis and 3-PRO-165-RSP-07.02, "Contamination Monitoring Requirements"

## Labeling Requirements

Sample containers must be labelled as described in the applicable Characterization Procedure. Obtain preprinted, uniquely numbered sample labels from ASD or RLC project representative if applicable.

## **Characterization Instruction Implementation**

This survey package is ready for implementation. Adequate detail is provided to allow implementation by the sampling team. DQO's and data evaluation requirements are covered in the *Decontamination* and *Decommissioning Characterization Protocol*, MAN-077-DDCP.

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Preparer Printed Name	Preparer Signature	Date
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Quality Assurance Reviewer Printed Name	Quality Assurance Reviewer Signature	Date

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Survey Area: N/A	Survey Unit: N/A	Building: T-439A	
Survey Unit Description Characterization Package	n		

## SAMPLING AND SURVEY INSTRUCTIONS

Measurement	Amount & Type	Comments
Media samples for asbestos analysis	At discretion of asbestos inspector. Sample only if suspect material is friable.  SEE NOTES 1 AND 2.	Sampler SHALL be a CDPHE Certified Asbestos Inspector; Sampling SHALL be performed according to PRO-563-ACPR, Asbestos Characterization Procedure; Inspection will determine precise sampling locations based upon accessibility. Sampler SHALL provide a map or sketch of precise sample locations and media (i.e., show pipes, ducts, etc)
Inspection of fluorescent light ballast for leaking PCB ballasts	All fluorescent light fixtures.	Leaking ballasts must be removed prior to disposition/resale/reuse by certified individuals.

**NOTE 1**: In order that sampling locations may be unequivocally located after sample analysis, sampling locations **SHALL** be documented on sample maps as well as the appropriate logs as required by the applicable characterization procedure, **AND** the sample location **SHALL** be physically marked either with a sticker or other durable marking containing the RIN, event, and bottle numbers (or if an IH sample, the IH sample number) of the sample.

**NOTE 2:** A Property / Waste Release Evaluation (P/WRE) is required for all analytical samples to be transported offsite for analysis. However, the instructions for RCTs and Radiological Operations Foreman in the following sections may be waived if it is deemed by Radiological Engineering (Arlan Moore) that no assay is required due to building history and process knowledge, per 3-PRO-141-RSP 09.01, *Unrestricted Release of Property, Material, Equipment, and Waste.* 

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#### T439A

## ASBESTOS INSPECTOR'S REPORT

I, the undersigned Certified Asbestos Inspector, certification # in the state of Colorado, attest to the asbestos inspection and sampling results as described below, for the following facility (at RFETS): Trailer 439A.

General Facility Location: south of Buildings 450 and 444.

#### **INSPECTION RESULTS**

Trailer 439A contains non-friable fiberboard wall panels and drywall (no tape joint compound associated with the drywall). Fiberglass insulation was found throughout the walls. Suspect friable asbestos containing materials were not observed and no samples were collected.

**SAMPLE RESULTS** 

None required; none taken.

INSPECTOR'S NAME

Andre Gonzalez

**SIGNATURE** 

DATE

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Survey Area: N/A	Survey Unit: N/A	Building: T-439D	
<b>Survey Unit Descriptio</b>	n		
Characterization Package			

## CHARACTERIZATION INSTRUCTION COVER SHEET

#### T-439D

Non-Radiological Concerns: Friable asbestos, Leaking PCB ballasts

## **Special Support Requirements**

Ladder, scaffolding, or man-lift. CDPHE-certified asbestos inspector for inspections and sampling. RCTs to support sampling operations.

## **Special Safety Precautions**

Fall protection is required for work above 6 ft. Respiratory protection at the discretion of IH. Access to roofs, stairs, or elevated structures may require additional approvals from security personnel. Refer to Activity Hazards Analysis and 3-PRO-165-RSP-07.02, "Contamination Monitoring Requirements"

## Labeling Requirements

Sample containers must be labelled as described in the applicable Characterization Procedure. Obtain preprinted, uniquely numbered sample labels from ASD or RLC project representative if applicable.

## **Characterization Instruction Implementation**

This survey package is ready for implementation. Adequate detail is provided to allow implementation by the sampling team. DQO's and data evaluation requirements are covered in the *Decontamination* and *Decommissioning Characterization Protocol*, MAN-077-DDCP.

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Preparer Printed Name	Preparer Signature	Date
Mark Buggs	Alani Cali Hillian	1 1.00
Quality Assurance Reviewer Printed Name	Quality Assurance Reviewer Signature	Date

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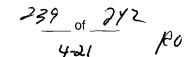
Survey Area: N/A	Survey Unit: N/A	Building: T-439D	
Survey Unit Description	n		
Characterization Package			

## SAMPLING AND SURVEY INSTRUCTIONS

Measurement	Amount & Type	Comments
Media samples for asbestos analysis	At discretion of asbestos inspector. Sample only if suspect material is friable.  SEE NOTES 1 AND 2.	Sampler SHALL be a CDPHE Certified Asbestos Inspector; Sampling SHALL be performed according to PRO-563-ACPR, Asbestos Characterization Procedure; Inspection will determine precise sampling locations based upon accessibility. Sampler SHALL provide a map or sketch of precise sample locations and media (i.e., show pipes, ducts, etc)
Inspection of fluorescent light ballast for leaking PCB ballasts	All fluorescent light fixtures.	Leaking ballasts must be removed prior to disposition/resale/reuse by certified individuals.

**NOTE 1**: In order that sampling locations may be unequivocally located after sample analysis, sampling locations **SHALL** be documented on sample maps as well as the appropriate logs as required by the applicable characterization procedure, **AND** the sample location **SHALL** be physically marked either with a sticker or other durable marking containing the RIN, event, and bottle numbers (or if an IH sample, the IH sample number) of the sample.

**NOTE 2:** A Property / Waste Release Evaluation (P/WRE) is required for all analytical samples to be transported offsite for analysis. However, the instructions for RCTs and Radiological Operations Foreman in the following sections may be waived if it is deemed by Radiological Engineering (Arlan Moore) that no assay is required due to building history and process knowledge, per 3-PRO-141-RSP 09.01, *Unrestricted Release of Property, Material, Equipment, and Waste.* 



## T439D

## ASBESTOS INSPECTOR'S REPORT

I, the undersigned Certified Asbestos Inspector, certification # ______in the state of Colorado, attest to the asbestos inspection and sampling results as described below, for the following facility (at RFETS): Trailer 439D.

General Facility Location: south of Buildings 450 and 444.

#### **INSPECTION RESULTS**

Trailer 439D contains 2' x 4' drywall ceiling panels. The ceiling panels are considered non-friable and were not sampled. Fiberglass insulation was found throughout the walls. No other suspect friable asbestos containing materials were observed and no samples were collected.

SAMPLE RESULTS

None required; none taken.

**INSPECTOR'S NAME** 

Andre Gonzalez

SIGNATURE

DATE

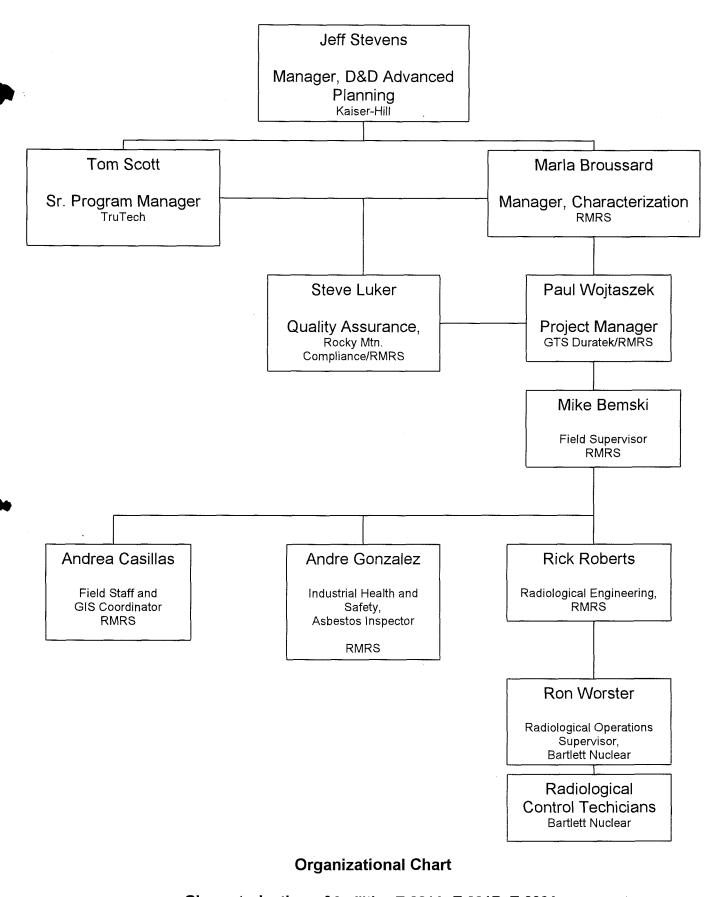
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Characterization of facilities T-881A, T-881B, T-883A,

T-883B, T-883C, T-439A, and T-439D.

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8/23/00 9/8/00 8/23/00 4/20/00 9/6/00 9/6/00 9/15/00 7/11/00 9/19/00 8/23/00 9/8/00 9/8/00
3/14/00 3/14/00 3/20/00 3/20/00 3/20/00 4/5/00 4/5/00 4/5/00 3/14/00 3/14/00 3/14/00 3/20/00 3/20/00
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Sampler(s) Rin (dme/dae) (dme/dae) (SZYD Rin (OA1148 Sampling Project Title Logboratory Protocol Related (Related of Protocol Related of Protocol Related of Protocol Related of Protocol Related of Related of Protocol Relat							٩
Sampler(s) RIN 00A1148 Project Title To (Lab) Building 559 Labe Protocol POSSIBLE SAMPLE HAZARDS. Are acid preserved samples DOT ha.			, 40	•			4
Project Title To (Lab) Building 559 Labe Protocol POSSIBLE SAMPLE HAZARDS. Are acid preserved samples DOT but		(timo/dete)		/ WICK	DEMOS	Telephone No. 46 05 MSIN	ğ.AX.
Project Tiffe To (Lab) Building 559 Labe Protocol POSSIBLE SAMPLE HAZARDS Are acid preserved samples DOT ha			Sampling Origin B&C Facilities			Code	
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Protocol POSSIBLE SAMPLE HAZARDS. Are acid preserved samples DOT has	oratory		Method of Shipment	Hond a	wry	Bill of Lading/Air Bill No. 1/A	
POSSIBLE SAMPLE HAZARDS			Related COC (if any)	BU		PRE	
Are other Known nazardous soustand	REMARKS readous per 40 CFR Pa ous present? YES or NC	rt 136.3 Table II? }	YES or NO	REQUIRED	SPECIAL INSTRU (TRAILEM (METPAL	Hold Time Total Acti	Vity Exemption: Yee□ No□ PLANTSITE〉
Battle No. ' Number	Matrix	Date Time	me Location	Container (size/type/cuentity)		Sample Analysis	Preservative; Packing
00A1148- 7-4R/QC 003.001	OTOS	• 1	0820 T881A	(-SAMPLE) P/G/I	PA04A017 (Alpha	PA04A017 (Alpha Spec Qualitative) [Routine]	None Nane
00A1148- M-18/ac 006.001	ONOS		1447 T8818 V	1-SAMPLE / P/G /f	PA04A017 (Alpha	PA04A017 (Alpha Spec Qualitative) [Routine]	None
00A1148- F-20R/ac 009.001	dios	3/2/20 0850	SD T883A	1-SAMPLE / P/G //	PA04A017 (Alpha	PA04A017 (Alpha Spec Qualitative) [Routine]	None
00A1148- F-20R/QC 012.001	апоѕ	34% 090B	₇₈₃₈ ^V	1-SAMPLE / P/G/I	PA04A017 (Alpha	PA04A017 (Alpha Spec Qualitative) [Routine]	None
00A1148- A-7R/QC 015.001	ROLID		/o832 2830	1-SAMPLE / P/G//	PA04A017 (Alpha	PA04A017 (Alpha Spec Qualitative) [Routine]	None None
00A1148- S-1RACC 018.001	aryos .	SILI OPRIZE	T439D V	1-SAMPLE / P/G /1	PA04A017 (Alpha	PA04A017 (Alphe Spec Qualitative) [Routine]	None None
00A1148- A-2RAC 021.001	GITOS	3/2/60 1243	13 T771D V	1-SAMPLE / P/G /1	PA04A017 (Alpha	PA04A017 (Alpha Spec Qualitative) [Routine]	None None
Relinguist Kar By	4/1/00/144C	SE SE	huson 4/4/00		Luson	TO	4/21/0V ORN
Keinnephilippe Kainnephilippe K	Les / St. 1324	Konsived By A	Her 4-250	Date Time Relinquished		Date/Time Received By:	Date/Time
Kelingahshad By: /	Date/Time	Received By:	d	Date/Time Retenguished By:	19y:	Date/Timo Received By	Date/Time
Reinguished By:	Date/Time	Received By:		Devertime Relinquished By:	(By:	DutorTiese Recalived Bare	A Section 1
UNAL SAMPLE Disposal Met	Disposal Method (e.g., returned to austainer, disposed of per lab procedure, used	oner, dapesed of per	r lab procedure, used in analytical process)	woces)	Disposed By		

	Т	Т	1	Т	1	1	1		· ·			 					-
00A1148#001	,	Preservative;	Pecking None. None						2	1>15	317		Date/Time	Data/Time	Date:Time	Date/Time	
Page	1								USE ONLY	49/2/4	NA PARTY NA				3002		Date/Time
Γ.	MSIN	eis.	ve) [Routine						ABORATORY U	DA	cable):	`	Received By:	denwed By	Rejerived By:	Received By:	
EQUEST	do.	Sumple Analysis	PA04A017 (Alpha Spec Qualitative) [Routine]						LABO	Custody Seal Intact: Labels/COC Agree:	TID#(if applicable) TIDRemoved;		Date/Time	1	Date/Time R	Deferrings R	
CUSTODY/SAMPLE ANALYSIS REQUEST	Telephone No. 8165		17 (Alpha S										Wisho				
LEANA		- E						-			With the second		Sold By:	in particular in the second	hed By:	æć By:	Disposed By
Y/SAMP		Centainer	1-SAMPLE / P/G /1										るを	Sey Relinqui	rea Relinguished By.	ne Relinquished By:	
CUSTOD	MOT	tkon	T33f										HIVOO 1445	Dato Time	Date/Time	DateTime	Disposal Method (e.g., relumed to customer, disposed of per lab procedure, used in analytical process)
CHAIN OF	Confact/Requestor SZYDLOWSKI, TOM	Time	1423			,							Heron	Here			fper leb procedure, us
0	<u>ŭ</u>	Date	200										S. S. S. S. S. S. S. S. S. S. S. S. S. S	Received By	Received By:	Received By:	omer, dispesed o
<u>·</u>		Matrix	SOLID	·									Date/Time	And 1324	DetecTime	Date-Time	e.g., relumed to cust
		Oustomer Number	C-1R/QC					,					*>	4.			-
	RIN 00A114B	Boule No.	00A1148- 1024.001						abr -				Relinguithed St.	Climate Die	Relinquished By:	Relinquished By.	FINAL SAMPLE DISPOSITION

	DEPTE			CLEAN		DY/SAIML	OF COSTODIASAMPLE ANALYSIS REQUEST	KEQUE,	LS		00A1148#002
Sampleria	_[`	-			6, ,					Page	ge 1 of 1
	100	WEhil .		(jimoldine)	_	/ Wick I	Deme	Telephone No.	o. / WAC MEDR		
00A1148	148				Sampling Origin R &	C FACILL		Purchase Or	万		
Project Title	\$ 8 St CHAMMARIANION	M. Charles	Ties		Logbook No.	,		Toe Chest No.	*//*	Tenn	
To (Lab)	General Enemeering				Method of Shipment			Hill of Yack	1		1/18
Protocal					Related COC (if any)	14 al. 1 a co	Ş	a Bad	over the inte		
SIBLE SA actid preservether known	POSSIBLE SAMPLE HAZARIS/REMARKS Are will preserved samples DOT hazardous per 40 CFR. Part 136.3 Table [1] YES Are other known hazardous substances present? TES of NO *** *** ***	EMANKS Indons per 40 CFI s present? YES o	R. Part 136.3	Table CP	(Magazina)	SCREENING SCREENING REQUIRED	ING SPECIAL INSTRUCTIONS Boid Time Total Activity Exemetion: Yes SRIPHOALOST.	CTIONS Boid Time	OCOSIS-cog 881-06 Time Total Activity Arbumed on these samples Th	- og 89/- og Total Activity Bremetion: these storides They are the ser	n: Yes No
Boutle No.	Conformer	Matrix	Dage	The	Lecation	Container					
00A1148-	A-TRADC	SOLID	5/2/		-	1-SAMPIE 7		Surpe Aralysis	योग्नेह		Packing
015.002			100	735			HUTA187 (Po-210, Pu, Am, U) [2145]	o, Pu, Am, U,	[21dS]		None
0041148. 019.002	O-tH	aros	1/82/5	1248	p ont	1-SAMPLE / P	TR01A187 (Po-210, Pu, Am, U) [2145]	3, Pu, Am, U)	[21dS]		None
00A1148-	Q-(B	SCE	1 /2	1		4 100000	_				euo N
081,002			72.8/00	\$ \$	1 HEDEL	NAME OF PARTY OF PART	TR01A187 (Po-210, Pu, Am, U) [21dS]	2, Pu, Am, U)	[21dS]		None
00A1148-	A-16R	Sould	3/28/00	0/5/	ł	1-SAMPLE / P	\top				None
034.002					~`	И	1001A187 (PO-210, PU, AM, U) [2105]	J, Pu, Am, U)	[21dS]		None
					1						
						4					
					西山	AND TOP					
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1											
	07	5/15/00 (22A)	Remark		Dauly Tune	Wilne Relieusished By:	ad Byr.	DarTine	Received By:		DateTime
Reduquisted By:		Date/Time	Southed By			Time Relinquished By	d By:	Detections	Renained Riv		
Refragished By.		Postelling	D.			-			ž		OxferIme
			Recentled pay		Dake/Thms	Ince Relinquished By:	d By:	Date/Line	Received By:		Data/Time
Reinquiched By.		DatesTime	Rectived By:		Data/Time	ine Relinguished Bys	4 By:	Date/Ture	Received By:		Detarline
FINAL SAMPLE	- -	Disposal Method (e.g., returned to customer, alegiound of per lab proces	omez, dispose	Saf per lab p	POCCESSES, exed in analysical enteres)	1822	Percent De-				

	CHAIN OF	_	DY/SAMPI	CUSTODY/SAMPLE ANALYSIS REQUEST	QUEST	00A1148#003
1 1	(time/date)	Contact/Requester		Tel	Telephone No. MSIN	FAX
		Sampling Origin		B L L	er/Charge Co	
-12-00		Logbook No.		[aoj		Temo.
l		Method of Shipment		ES .	Bill of Lading/Air Bill No.	
1		Related COC (if any)		PRE		
1	FOSSIBLE SAMPLE HAZARDSREMARKS Are acid preserved samples DOT hazardons per 40 CFR. Part 136.3 Table II? YES of NO Are other known hazardons substances present? YES of NO	SorNO	SCREENING REQUIRED	SPECIAL INSTRUCT	Hold Time	Total Activity Exemption: Yes 📋 No 📙
	Date Time	Location	Container			6
(->		T881A	1-SAMPLE /	DADAROAN LAINE	Sample Analysis	Packing Packing
W I	260 0835		P/G //	FA04A017 (Alpha Spec Qualitative) [Routine]	Qualitative) [Routine]	None
10	28/ 1007.1	TBBIA	1-SAMPLE/	PA04A017 (Alpha Spec Qualitative) [Routine]	Qualitative) [Routine]	None
, , ,	180 585	_	1/96/1	•		None
LK1	121/2 HSS	- 188/B >	1-SAMPLE / P/G /1	PA04A017 (Alpha Spec Qualifative) [Routine]	Qualitative) [Routine]	None
1	3/1 1400	T881B	1-SAMPLE / P/G //	PA04A017 (Alpha Spec Qualitative) [Routine]	Qualitative) [Routine]	None
1 1 ~			L Market			None
de.	28% 0856	विवेजन ४	P/G//	PA04A017 (Alpha Spec Qualitative) [Routine]	Qualitative) [Routine]	None
1		T883A V	1-SAMPLE/	PANAAN17 (Alaba Cace)		- rone
2	129/20 (0847)		P/G/f	Coutine Chec Chaileanne) Coutine	zuanitative) [Koutine]	None
্ঞ	1/2/20 1915	T883BV	1-SAMPLE / P/G /1	PA04A017 (Alpha Spec Qualitative) [Routine]	Qualitative) [Routine]	None
Receip	ed By:	/ Date	Date/Time Relinemished Dov		ſ	Mone
	Jan Jan				Lister Limb Kecsived By:	Defe-Time
₿J.	The same of the sa	State Date Tin	Date-Time Relinquished By:		DeferTime Received By:	DateTime
§)	Received By:	, in Date	'M Sate/Time Refinquished By:		Dute/Time Recaived By:	Date/Ture
-57	Repeived By:	Date	Date/Time Relinquished By:		Date/Time Received By:	Date/Cipe
1.6	sposed of per lab pro	Disposal Method (e.g., returned to customer, disposed of per lab procedure, used in analytical watered	'ess'	Oliver of Park		

			•	CHALIN OF	_	DIJOAIMEL	COSTODIOAMFLE ANALYSIS REQUEST		UUA1148#UUS	
BIN		1		ontact/Regue	stor		Polankone, Mr.		Page 2 of	41
141148				SZYDLOWSKI, TOM	SKI, TOM		8165	MISIN	FAX	
Bottle No.	Number	Matrix	Dele	Time	Location	Contrainer (size/type/quantity)	Sample Analysis	sizylan	Press	Preservative :
00A1148- 011.001	F-20R	ginos	"/3g	18,00	T883B	1-SAMPLE / P/G /f	PA04A017 (Alpha Spec Qualitative) [Routine]	ative) [Routine]	None	Laccoule Laccoule
00A1148-	H11R	GFTOS	13.00	2000	7883C V	1-SAMPLE /	PA04A017 (Alpha Spec Qualitative) [Routine]	ative) [Routine]	None	
- 3		J	8	3 7 7 3)		•	None	
00A1148- 014.001	A-7R	SOLID	3,000	06,30	T883C	f-SAMPLE/ P/G/f	PA04A017 (Alpha Spec Qualitative) [Routine]	ative) [Routine]	None	
00A1148- 016.001	F-7R	anos	3/2/20	M23	T439D <	1-SAMPLE / P/G /1	PA04A017 (Alpha Spec Qualitative) [Routine]	ative) [Routine]	None	
00A1148- 017.001	S-(R	arios	3/22/60	85.	T439D V	1-SAMPLE / P/G /f	PA04A017 (Alpha Spec Qualitative) (Routine)	ative) [Routine]	Nane	
ODA 1148.	0.4B	SOLIOS	2,		The Parameter	4 SABADI E 4			None	
019.001	Ę,	1	300	8721	177107	P/G /1	PA04A017 (Alpha Spec Qualitative) [Routine]	ative) [Routine]	None	
00A1148- 020.001	A-2R	solip	" Sy	0521	VQ157T	1-SAMPLE / P/G //	PA04A017 (Alpha Spec Qualitative) [Routine]	tive) [Routine]	None	
00A1148-	H-1R	SOUD	8		1000	\$_C41,400 E /			None	
022.001			3	1430	3	P/G/M	PA04A017 (Alpha Spec Qualitative) [Routine]	ifive) [Routine]	None	
00A1148-	C-4R	Sould	à		1324	1-SAMPLE			MUTH	
023,001			3 3	0251		P/G/II	PAN4AU1 (Alpha Spec Qualitative) [Routine]	tive) [Routine]	None	
00A1148- 025.001	H-2R	Soul	188	\S. 	7750E /	1-SAMPLE / P/G/I	PA04A017 (Alpha Spec Qualitative) [Routine]	tive) [Routine]	None	
00.44400	000		3						None	
026.001	- Contraction	30 .1 0	129/20	1405/	7750E V	P/G //	PA04A017 (Alpha Spec Qualitative) [Routine]	live) [Routine]	None	
Redingaished Phys	7 4.13.00	ן א	Received By:	Sarch	4/3/00 Date Time	Date/Time Relinquished By:	.By: Detectione	Received By:		Date/Time
20	vancon 5/	LE		M	Sill 60 1150	Date Time Relinquished By:	By: DeterTime	Restrivet By:	Ā	DetecTime
Kelmquished By:		Date/Time	Received By:	•	Date	Date/Time Refinguished By:	Date/Time	Received By:	Date	Date:Time
Retinquished By:		Date/Time	Received By:		Date	Date/Time Relinquished By:	DataTime	Received By:	Dafe	Date/Time
FINAL SAMPLE	B Disposal Method (e.g., returned to customer, disposed of ten leh removine mead	.g., returned to custo	mer disposed	of ner leh nemen	direction for modulations and					

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RMRS		·		HAIN	OF CUST	DY/SAMPI	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	H	co.c.# 00A1	00A1148#003
									Page 3	of 4
RIN 00A1148			<u> </u>	Confact/Requestor SZYDLOWSKI, TOM	estor 'SKI, TOM		Telephone No. 8165	MSIN	RAX	
Bottle Na	Customer Number	Matrix	Dete	Time	Location	Container (size/type/quantify)	Sample Analysis	alysis		Preservative; Packine
00A1148- 027.001	E-3R/QC	SOLID	36	하	√ ∃027T	1-SAMPLE / P/G /1	PA04A017 (Alpha Spec Qualitative) [Routine]	ttive) [Routine]		None None
00A1148- 028.001	L-1N	SOLID	14 Mg	13/5	T903A	1-SAMPLE / P/G /1	PA04A017 (Alpha Spec Qualitative) [Routine]	ttive) [Routine]		None Nane
00A1148- 029.001	N-2N	SOLID	300	1310	T903A V	1-SAMPLE / P/G /1	PA04A017 (Alpha Spec Qualitative) [Routine]	tive) [Routine]		None None
00A1148- 030.001	N-2N/OC	gros	3 kake	1311	T903A	1-SAMPLE / P/G //	PA04A017 (Alpha Spec Qualifative) [Routine]	tive) [Routine]		Nane Nane
00A1148- 031.001	0-1R	QITIOS	%2/2 1/2/2	1325	TSOSA	1-SAMPLE / P/G//	PA04A017 (Alpha Spec Qualitative) [Roufine]	itive) [Routine]	22	None
00A1148- 032.001	G-3R	sorip	Wag Wag	1319	T903A	1-SAMPLE/ P/G/1	PA04A017 (Alpha Spec Qualitative) [Routine]	tive) [Routine]	2 2	None None
00A1148- 033.001	6-3R/QC	SOLID	3/29/2	1251	T903A V	1-SAMPLE/ P/G/1	PA04A017 (Alpha Spec Qualitative) [Routine]	tive) [Routine]	2 2	None
00A1148- 034.001	A-16R	gnos	3/29/20	0151	T331A V	1-SAMPLE / P/G /1	PA04A017 (Alpha Spec Qualitative) [Routine]	(Ive) [Routine]	2 2	Nane Nane
00A1148- 035.001	C-13R	Sould	3	ĝ	T331A V	1-SAMPLE / P/G /1	PA04A017 (Alpha Spec Qualitative) [Routine]	tive) [Routine]	2 2	None None
00A1148- 036.001	C-13R/QC	OTOS	3/2%	1503	T331A	1-SAMPLE / P/G /1	PA04A017 (Alpha Spec Qualitative) [Routine]	tive) [Routine]	2 2	None None
00A1148- 037.001,	H-38	SOLID	4/8/60	5071	∜ ¥78595	1-SAMPLE / P/G //	PA04A017 (Alpha Spec Qualitative) [Routine]	live) [Routine]	Z Z	None Nane
Relindar By	h (1)	4-13-04 /SOB	36	nones	adeilt :	Date-Time Refinguished By:	ted By: Date/Time	Received By:		Date/Time
Selinquishing S	John Stranger	Solubo ISID	Received By	JAMIC.	7 5.11.00	Date/Time Reimquished By:	red By. Date/Time	Received By:		Data/Time
Relinquisled By:		Date/Time	Roceived By	ارد د	1	Date/Time Relinguished By:	ted By: Date/Time	Received By:		Deterlime
Relinquished By:		Date/Time	Received By:	1.	(DataTime Relinquished By:	ed By: Date/Time	Received By:		Date/Time
FINAL SAMPLE DISPOSITION		Disposal Method (e.g., returned to customer, disposed of per lab procedure, used in snahyical process)	ıstamar, dispose	al of per lab pro-	cedure, used in analytical	process)	Dispased By		Date/Time	

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RMRS			5	CHAIN OF		OY/SAMPL	CUSTODY/SAMPLE ANALYSIS REQUEST	00°	00Ai148#003
								Page	41 40 41
RUN 00A1148			<u>5</u>	Condact/Requestor SZYDLOWSKI, TOM	estor 'SKI, TOM		Telephone No. 1 8165	MSIN FAX	
Bottle No.	Custonner Nursber	Matrix	Date	Time	Location	Container (size/type/quantity)	Sample Analysis		Preservative; Parfeine
00A1148- H	4-38/ac	anos	4/2/2	(921	96981米米	1-SAMPLE / P/G/1	PA04A017 (Alpha Spec Qualitative) [Routine]	outine]	None
00A1148- 039.001	E-5R	OLLOS .	13/3	1121	** TB595	1-SAMPLE / P/G //	PA04A017 (Alpha Spec Qualitative) [Routine]	udine]	Nane None
					•				
	·								
87.50									
Relinguished By:	7 413.00	Date/Trace	Received By:	Sim	OISI OF IT	Date-Time Reinquished By:	By: Date/Time Received By:		Date/Time
Gedinolustrating:	5/w/m	5/11/80 1517	Received	7	S-11-04 ISP	Dete-Time Refraguished By:	By: Deta/Time Resulved By:	<u>.</u>	Date/Time
Relinquiched By.		Date/Tone	Received By:	,,,,,,	ρ	DeterTime Relinguished By:	By: DataTime Received By:	Ł	Date/Time
Relinquished By:		Date/Time	Received By:		Dat	Date/Time Relinquished By:	By: DateTime Received By:		Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method (e.g.	isto oj poumajar,	omer, disposed	t of per lab proc	Disposal Mirthod (e.g., returned to ensloance, dispossed of per lab procedure, used in analytical process)	coess)	Disposed By	Date/Time	
					* B575				

OASIS Direct Analysis Measurement Result Information

The samples listed below were analyzed using the Oxford Alpha Spectroscopy Integrated System (OASIS) at the Rocky Flats Environmental Technology Site. These samples were counted directly in the alpha spectrometer chambers, without chemical preparation. The technical basis for this type of analysis has been established in TBD-00143, Direct Analysis of Alpha Emitters Using the Oxford Alpha Spectroscopy Integrated System (OASIS), and TBD-00153, Use of the OASIS for Direct Differentiation between Po-210 and DOE-enhanced Materials.

In order to maintain the quality of OASIS measurements, the instrument is performance tested in accordance with Operations Order OO-771-228, Direct Analysis of Alpha Emitters Using the Oxford Alpha Spectroscopy Integrated System (OASIS). This Operations Order establishes the periodicity of performance test and background measurements, and the criteria against which these measurements are judged. All samples are counted by RCTs or REs qualified per JPM 036-119-53, Direct Analysis of Alpha Emitters Using the Oxford Alpha Spectroscopy Integrated System (OASIS) and approved by qualified REs.

A sample of the calibration and performance test data is attached for your review. All such data are maintained by the OASIS analysts and are available for your perusal.

The samples were 1-in coupons with an area of 4.82 cm². Calculation of the activity per 100 cm² was performed assuming that samples were representative. Errors are quoted at one standard deviation, accounting for all associated analytical uncertainties. Uranium results refer to the presence of U-238, U-234, or U-235.

	Sample Number	OASIS o	ipm ± 1s	dpm/100	cm²±1s	
	,					
881A	00A1148-001.001	2.53	0.22	52.5	(4.5)	
831A	00A1148-002.001	1.83	0.12	37.8	2.6	
8814 QC	00A1148-003.001	1.11	0.10	23.0	2.0	
881BL	00A1148-004.001	2.90	0.24	60.0	4,9	
981B	00A1148-005.001	5.87	0.33	121.6	6.8	
	00A1148-006.001	3.54	0.16	73.3	3.4	
	00A1148-007.001	3.44	0.25	71.4	(5.2)	
363A	00A1148-008.001	5.93	0.22	122.8	4.5	
BBBA QC	00A1148-009.001	3.73	0.17	77.4	3.5	
	00A1148-010.001	4,13	0.27	85.7	5.7	
	00A1148-011.001	4.33	0.28	89.8	(5.8)	
BASB WC	00A1148-012.001	5.58	0.21	115.7	4.4	
533 C	00A1148-013.001	0.04	0.05	0.9	1.1	
£45.0	00A1148-014.001	7.91	0.39	163.9	8.1	
883 c ac	00A1148-015.001		0.25	143.8	5.2	
139 D	00A1148-016.001	7.21	0.38	149.4	(7.8)	
4390	00A1148-017.001	5.12	0.32	106.2	6.6	
4390 ac	00A1148-018.001	3.37	0.25	69.9	5.3	
	00A1148-019.001	11.76	0.46	243.6	(9.6)	
	00A1148-020.001	8.92	0.40	184.8	8.4	
7710 ac	00A1148-021.001	9,89	0.24	204.9	4.9	
7331	00A1148-022.001		0.08	2.7	1.6	
T 331	00A1148-023.001	0.96	0.14	19.8	(2.9)	



+331 QC	00A1148-024.001	3.27	0.16	67.7	3.3
750E	00A1148-025.001	7.58	0.37	157.1	7.7
750E	00A1148-026.001	10.11	0.45	209.6	(9.3)
750ERC	00A1148-027.001	10.40	0.46	215.6	9.5
/903A	00A1148-028.001	0.62	0.12	12.8 m	n 2.4
(9034	00A1148-029.001	2.87	0.15	59.5	3.1
) gozn ac	00A1148-030.001	3.08	0.16	63.8	3.2
903A	00A1148-031.001	10.33	0.46	214.1 W	№ (9.4)
9030	00A1148-032.001	3.31	0.25	68.6	5.2
903A QC	00A1148-033.001	6.06	0.22	125.6	4.5
T 331A	00A1148-034.001	10.72	0.31	222.2 \	6.3
丁33次	00A1148-035.001	9.53	0.42	197.5	(8.8)
T3312 OC	00A1148-036.001	7.51	0.38	155,6	7.9
575	00A1148-037.001	2.37	0.14	49.1	(2.8)
515 Q 9	00A1148-038.001	1.88	0.08	38.9	1.7
515	00A1148-039.001	2.21	0.09	45.7	1.8
	-				

	Identified Peaks				Detection Sensitivity			
Sample ID			i cans		(0	dpm/100	cm²)	
Cample 15	Pu+Am	Pu-	Am-	U	Pu+Am	Pu-	Am-	U
		239	241			239	241	
881K 00A1148-001.001	No	No	No	No	(79)	70	10	79
831A 00A1148-002.001	No	No	No	No	32	28	4	32
83 A 00A1148-003.001 QC	No	No	No	No	30	26	4	30
多600A1148-004.001 🔾	No	No	No	No	(79)	70	10	(79)
治部 00A1148-005.001 /	No	No	No	No	79	70	10	79
ිරීම් 00A1148-006.001 AC	No	No	No	No	30	26	4	30
983A 00A1148-007.001	No	No	No	No	(79)	70	10	(79)
383A 00A1148-008.001	No	No	No	No	30	26	4	30
355 № 00A1148-009.001 QC	No	No	No	No	30	26	4	30
883B 00A1148-010.001 \	No	No	No	No	(79)	70	10	(79)
გვვც 00A1148-011.001 ⁷	No	No	No	No	79	70	10	79
383B00A1148-012.001 QC	No	No	No	No	30	26	4	30
00A1148-013.001	No	No	No	No	79	70	10	79
00A1148-014.001	No	No	No	No	79	70	10	79
00A1148-015.001	No	No	No	No	34	30	4	34
00A1148-016.001	No	No	No	No	79	70	10	79
00A1148-017.001	No	No	No	No	79	70	10	79
00A1148-018.001	No	No	No	No	79	70	10	79
77ID 00A1148-019.001	No	No	No	No	70	61	8	70
771D 00A1148-020.001	No	No	No	No	(79)	70	10	79
771D 00A1148-021.001 QL	No	No	No	No	17	15	2	17
T331 00A1148-022.001	No	No	No	No	/ 7 9\	70	10	79
T331 00A1148-023.001	No	No	No	No	79	70	10	79
T331 00A1148-024.001 0C	No	No	No	No	30	26	4	30
150£ 00A1148-025.001	No	No	No	No	79	70	10	79
757€ 00A1148-026.001	No	No	No	No	79	70	10	79
75% 00A1148-027.001 No	No	No	No	No	79	70	10	79
963A 00A1148-028.001	No	No	No	No	79	70	10	79

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00A1148-029.001	No	No	No	No	30	26	4	30
00A1148-030.001	No	No	No	No	30	26	4	30
00A1148-031.001	No	No	No	No	79	70	10	79
00A1148-032.001	No	No	No	No	79	70	10	79
00A1148-033.001	No	No	No	No	30	26	4	30
00A1148-034.001	No	No	No	No	30	26	4	30
00A1148-035.001	No	No	No	No	(75)	66	9	(15)
00A1148-036.001	No	No	No	No	79	70	10	79
00A1148-037.001	No	No	No	No	30	26	4	30
00A1148-038.001	No	No	No	No	12	10	1	12
00A1148-039.001	No	No	No	No	12	10	1	12

Approved by:

C. J. Bianconi, CHP B771 Radiological Engineering 303.966.7262 303.212.5706 dp

Lele 2

RFETS; Golden, CO Apr 24, 2000 09:53:07

Sample ID: 881A 00A1148-001.001 Type: Unknown

Batch ID:

unknown

Acquisition Start: Analysis Date:

April 20, 2000 08:39:27 April 24, 2000 09:52:59

Procedure:

polonium210 samples

Device:

Oasis:02:01

Analysis Method:

ROI Analysis

Spectrum File:

00000290.OXS

Calibrations:

Energy = 2.127E+02 + 2.333E+00 * Chn Coeff. of Correlation: -0.998 Calibration Date: March 14, 2000 09:19:39 Std: 2:1 energy cal

Shape not Calibrated.

Efficiency = $3.393E-01 \pm 4.339E-03$

Calibration Date: August 11, 1999 13:14:16 Std: AS 4188

LiveTime: 10,800.00

External Recovery

No Ext.Recovery

Original Sample Amount:

 1.000 ± 0.000 samp

Aliquot Amount:

 1.000 ± 0.000 samp

ROI DATA

ROI	ID	ASSOCIATED	EXTE	NTS	PK EN	FWHM
#		NUCLIDE	START	END	(keV)	(keV)
1	Po218	Po218	5552.6	6077.8	5814.6	2.3
2	Po214	Po214	7420.0	7770.1	7594.8	1.2
3	Po212		8521.5	8850.6	8684.3	2.3
4	Po210	Po210	2263.7	5402.1	5177.6	2.3

ROI ANALYSIS RESULTS

ROI ID	NET COUNTS	BKG/INTERF	CPM	ROI TYPE
Po218	0.2 ± 1.0	0.76	$1.33E-03 \pm 5.70E-03$	Unknown
Po214	-0.1 ± 0.1	0.07	$-3.84E-04 \pm 3.84E-04$	Unknown
Po212	0.9 ± 1.0	0.14	$4.79E-03 \pm 5.58E-03$	Unknown
Po210	154.7 ± 13.0	13.35	0.859 ± 0.072	Unknown

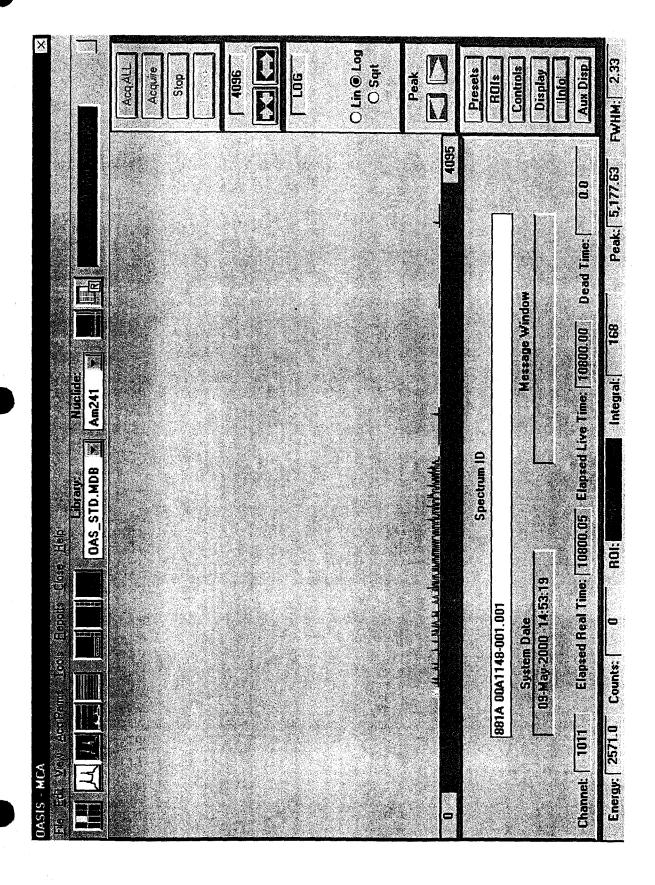
NUCLIDE ANALYSIS RESULTS

ROI ID	ASSOC NUC	EMM. PROB	ACTIVITY	MDA
			(dpm/samp)	(dpm)
Po218	Po218	1.000	$3.92E-03 \pm 0.017$	9.29E-02
Po214	Po214	1.000	$-1.13E-03 \pm 1.13E-03$	5.90E-02
Po212		1.000	0.014 ± 0.016	6.50E-02
Po210	Po210	1.000	2.532 ± 0.215	2.48E-01

Activity reported as of April 20, 2000 08:39:27

ANALYSIS REVIEWED BY:

APPROVED BY:



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RFETS; Golden, CO Apr 21, 2000 15:17:03

Sample ID: 881A 00A1148-002.001 Type: Unknown

Batch ID: unknown

Acquisition Start: April 21, 2000 07:49:49
Analysis Date: April 21, 2000 15:14:19
Procedure: polonium210 samples

Device: Oasis:02:01
Analysis Method: ROI Analysis

Spectrum File: 00000297.0XS LiveTime: 26,514.17

Calibrations:

Energy = 2.127E+02 +2.333E+00 * Chn Coeff. of Correlation: -0.998 Calibration Date: March 14, 2000 09:19:39 Std: 2:1 energy cal

Shape not Calibrated.

Efficiency = $3.393E-01 \pm 4.339E-03$

Calibration Date: August 11, 1999 13:14:16 Std: AS 4188

External Recovery No Ext.Recovery

Original Sample Amount:

ROI DATA

ROI	ID	ASSOCIATED	EXT	'ENTS	PK EN	FWHM
#		NUCLIDE	START	END	(keV)	(keV)
1	Po218	Po218	5552.6	6077.8	5814.6	2.3
2	Po214	Po214	7420.0	7770.1	7594.8	1.2
3	Po212		8521.5	8850.6	8684.3	1.2
4	Po210	Po210	2263.7	5402.1	4683.0	4.7

ROI ANALYSIS RESULTS

ROI ID	NET (COUNTS	BKG/INTERF	CPM	ROI TYPE
Po218	1.5	± 2.3	2.46	$3.50E-03 \pm 5.31E-03$	Unknown
Po214	0.0	± 0.0	0.00	$0.00E+00 \pm 0.00E+00$	Unknown
Po212	-0.6	± 0.6	0.61	$-1.39E-03 \pm 1.39E-03$	Unknown
Po210	273.8	± 18.2	36.21	0.620 ± 0.041	Unknown

NUCLIDE ANALYSIS RESULTS

ROI ID	ASSOC NUC	EMM. PROB	ACTIVITY	MDA
			(dpm/samp)	(dpm)
Po218	Po218	1.000	0.010 ± 0.016	6.17E-02
Po214	Po214	1.000	$0.00E+00 \pm 0.00E+00$	1.80E-02
Po212		1.000	$-4.09E-03 \pm 4.09E-03$	3.99E-02
Po210	Po210	1.000	1.826 ± 0.124	1.86E-01

Activity reported as of April 21, 2000 07:49:49

ANALYSIS REVIEWED BY:

APPROVED BY:

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Page 1

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O Lin ® Log FWHM: 2.39 4096 Aux Disp Acquire O Sqrt Controls Display Stop Presets 5.Static: 00000292.0XS Peak: 5,050.79 1551 Elapsed Real Time: 10800.11 Elapsed Live Time: 10800.00 Dead Time: 0.0 Spectrum ID Message Window Nuclide: ■ Integral: 127 OAS_STD.MDB 🕶 Library: ROLL System Date 10:May-2000 06:11:46 881A 00A1148-002.001 DASIS - MCA Channel:

Sample ID: 00A1148-003.001 Type: Unknown

Batch ID: unknowns

May 02, 2000 13:02:56 May 03, 2000 07:11:03 Acquisition Start: Analysis Date:

Procedure: Po210 count Device: Oasis:01:01 Analysis Method: ROI Analysis

Spectrum File: 00000522.OXS LiveTime: 28,800.00

Calibrations:

Energy = 3.865E+01 +2.790E+00 * Chn Coeff. of Correlation: -0.998Calibration Date: April 03, 2000 17:45:10 Std: 1:1 energy cal

Shape not Calibrated.

Efficiency = $3.041E-01 \pm 4.004E-03$

Calibration Date: April 07, 2000 09:49:29 Std: TS4189

External Recovery No Ext. Recovery

Original Sample Amount:

 1.000 ± 0.000

Aliquot Amount: 1.000 ± 0.000

ROI DATA

ROI ID ASSOCIATED EXTENTS PK EN **FWHM** # NUCLIDE START END (keV) (keV) 1 Po218 Po218 5550.0 6104.5 4.2 5826.0 2 Po214 Po214 6588.5 7874.7 7229.6 2.8 3 Po212 Po212 8393.8 8808.6 8599.7 2.8 4 Po210 Po210 2180.3 5343.3 4531.3 2.8

ROI ANALYSIS RESULTS

ROI ID NET COUNTS BKG/INTERF CPM ROI TYPE Po218 19.7 ± 4.7 1.33 $0.041 \pm 9.75E-03$ Unknown Po214 1.3 ± 1.6 0.67 $2.78E-03 \pm 3.26E-03$ Unknown Po212 11.3 ± 4.0 2.67 $0.024 \pm 8.28E-03$ Unknown Po210 161.7 ± 13.9 19.33 0.337 ± 0.029 Unknown

NUCLIDE ANALYSIS RESULTS

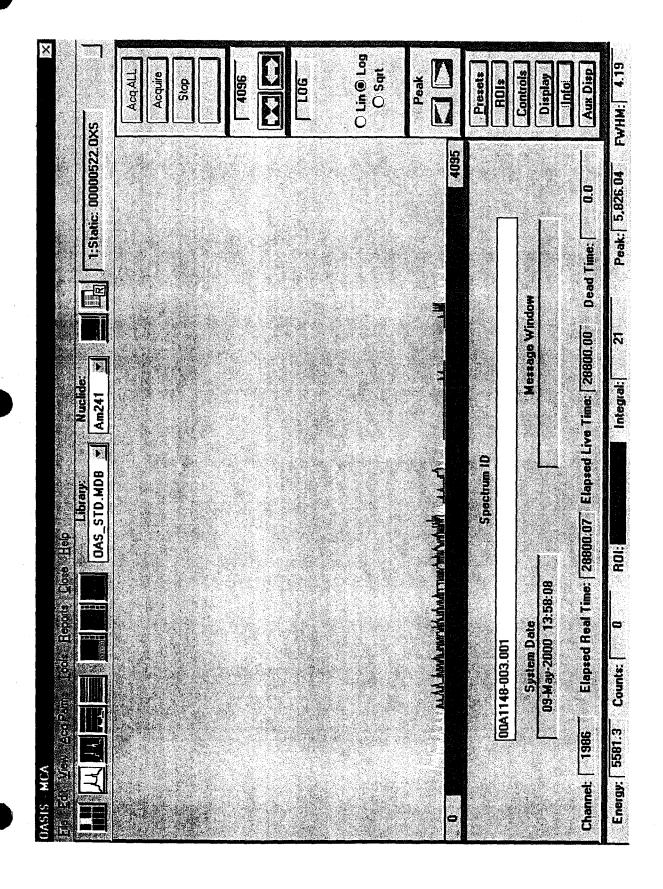
ROI ID ASSOC NUC EMM. PROB ACTIVITY MDA (dpm/samp) (dpm) Po218 Po218 1.000 0.135 ± 0.032 5.21E-02 Po214 Po214 1.000 $9.14E-03 \pm 0.011$ 4.23E-02 Po212 Po212 1.000 0.078 ± 0.027 6.61E-02 Po210 Po210 1.000 1.108 ± 0.097 1.47E-01

Activity reported as of May \$2 2000/13:02:

ANALYSIS REVIEWED BY:

APPROVED BY:

te 20,30



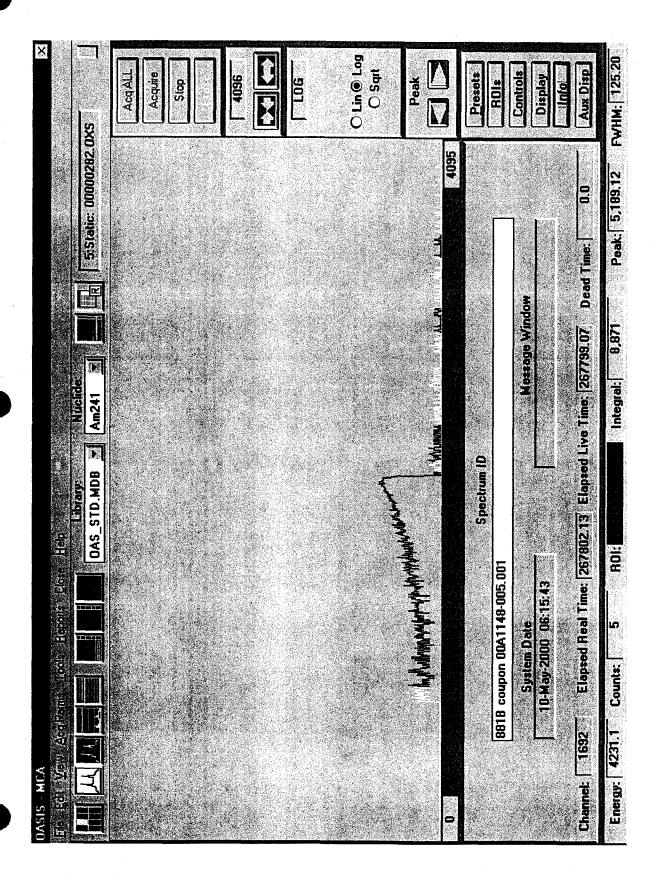
RFETS; Golden, CO Apr 19, 2000 07:30:58

ample ID: 881B coupon 00A1148-005.001 Type: Unknown Batch ID: unknown Acquisition Start: April 18, 2000 13:05:01 Analysis Date: April 19, 2000 07:30:52 Procedure: polonium210 samples Device: Oasis:02:01 Analysis Method: ROI Analysis Spectrum File: 00000282.OXS LiveTime: 10,800.00 Calibrations: Energy = 2.127E+02 + 2.333E+00 * ChnCoeff. of Correlation: -0.998 Calibration Date: March 14, 2000 09:19:39 Std: 2:1 energy cal Shape not Calibrated. Efficiency = $3.393E-01 \pm 4.339E-03$ Calibration Date: August 11, 1999 13:14:16 Std: AS 4188 External Recovery No Ext. Recovery Original Sample Amount: 1.000 ± 0.000 samp Aliquot Amount: 1.000 ± 0.000 samp ROI DATA ROI ID ASSOCIATED EXTENTS **FWHM** PK EN NUCLIDE START END (keV) (keV) 1 Po218 Po218 5552.6 6077.8 5814.6 1.2 2 Po214 Po214 7420.0 7770.1 7594.8 1.2 3 Po212 8521.5 8850.6 8684.3 1.2 4 Po210 Po210 2263.7 5402.1 5152.0 2.7 ROI ANALYSIS RESULTS ROI ID NET COUNTS BKG/INTERF CPM ROI TYPE Po218 -1.0 ± 0.5 $^{-5.56E-03} \pm 2.78E-03$ Unknown 1.00 Po214 0.0 ± 0.0 0.00 $0.00E+00 \pm 0.00E+00$ Unknown Po212 -0.3 ± 0.3 0.25 $-1.39E-03 \pm 1.39E-03$ Unknown Po210 358.3 ± 19.4 1.990 ± 0.108 14.75 Unknown NUCLIDE ANALYSIS RESULTS ROI ID ASSOC NUC EMM. PROB ACTIVITY MDA (dpm/samp) (dpm) Po218 Po218 1.000 $-1.64E-02 \pm 8.19E-03$ 1.05E-01 Po214 Po214 1.000 $0.00E+00 \pm 0.00E+00$ 4.43E-02 Po212 1.000 $-4.09E-03 \pm 4.09E-03$ 7.44E-02 Po210 Po210 1.000 5.866 ± 0.327 2.76E-01 Activity reported as of April 18, 2000 13:05:01 ANALYSIS REVIEWED BY:

APPROVED BY:

Page 1

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Sample ID:

00A1148-006.001 Type: Unknown

Batch ID:

unknowns

Acquisition Start:

May 01, 2000 15:37:58

Analysis Date:

May 02, 2000 06:53:01

Procedure: Device:

Po210 count Oasis:01:02

Analysis Method:

ROI Analysis

Spectrum File:

00000521.OXS LiveTime: 28,800.00

Calibrations:

Energy = 5.823E+01 +2.790E+00 * Chn Coeff. of Correlation: -0.998Calibration Date: April 07, 2000 14:55:56 Std: 1:2 energy cal

Shape not Calibrated.

Efficiency = $3.089E-01 \pm 4.062E-03$

Calibration Date: April 07, 2000 15:15:30

Std: TS4189

External Recovery

No Ext.Recovery

Original Sample Amount:

 1.000 ± 0.000 samp

Aliquot Amount:

 1.000 ± 0.000 samp

ROI DATA

ROI	ID	ASSOCIATED	EXTE	NTS	PK EN	FWHM
#		NUCLIDE	START	END	(keV)	(keV)
1	Po218	Po218	5550.0	6104.5	6038.1	2.8
2	Po214	Po214	6588.5	7874.7	7229.6	2.8
3	Po212	Po212	8393.8	8808.6	8775.5	3.5
4	Po210	Po210	2180.3	5343.3	5234.5	3.3

ROI ANALYSIS RESULTS

ROI ID	NET (COUNTS	BKG/INTERF	CPM	ROI TYPE
Po218	41.0	± 6.4	0.00	0.085 ± 0.013	Unknown
Po214	8.3	± 3.1	0.68	$0.017 \pm 6.41E-03$	Unknown
Po212	48.0	± 6.9	0.00	0.100 ± 0.014	Unknown
Po210	524.7 :	± 23.4	12.31	1.093 ± 0.049	Unknown

NUCLIDE ANALYSIS RESULTS

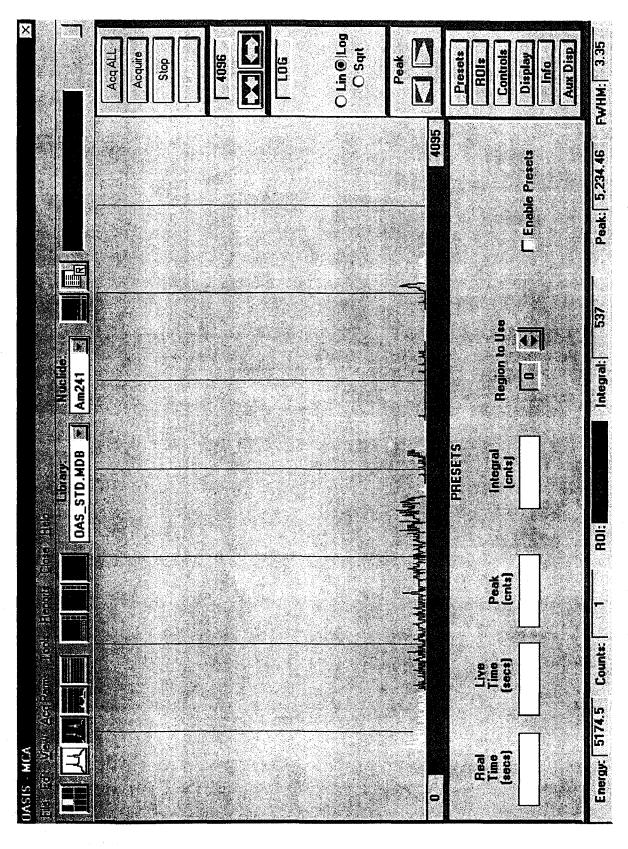
ROI ID	ASSOC NUC	EMM. PROB	ACTIVITY	MDA
			(dpm/samp)	(dpm)
Po218 '	Po218	1.000	0.276 ± 0.043	1.82E-02
Po214	Po214	1.000	0.056 ± 0.021	4.21E-02
Po212	Po212	1.000	0.324 ± 0.047	1.82E-02
Po210	Po210	1.000	3.538 ± 0.164	1.19E-01

Activity reported as of May 1

ANALYSIS REVIEWED BY

APPROVED BY:

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0041148-006.001

RFETS; Golden, CO Apr 21, 2000 15:18:44

Sample ID: 881A 00A1148-007.001 Type: Unknown

Batch ID:

unknown

Acquisition Start: Analysis Date:

April 21, 2000 07:40:11 April 21, 2000 15:12:57

Procedure:

polonium210 samples

Device:

Oasis:02:04

Analysis Method:

ROI Analysis

Spectrum File:

00000298.OXS

Calibrations:

Energy = 1.412E+02 + 2.389E+00 * Chn Coeff. of Correlation: -0.998

Calibration Date: April 05, 2000 09:30:14

Std: AS 4188

LiveTime: 10,800.00

Shape not Calibrated.

Efficiency = $3.398E-01 \pm 4.596E-03$

Calibration Date: April 05, 2000 09:40:39 Std: AS 4188

External Recovery No Ext.Recovery

Original Sample Amount:

 1.000 ± 0.000 samp

Aliquot Amount:

 1.000 ± 0.000 samp

ROI DATA

ROI	ID	ASSOCIATED	EXTENTS		PK EN	FWHM
#		NUCLIDE	START	END	(keV)	(keV)
1	Po218	Po218	5552.6	6077.8	5815.3	2.4
2	Po214	Po214	7420.0	7770.1	7595.2	1.2
3	Po212		8521.5	8850.6	8684.6	1.2
4	Po210	Po210	2263.7	5402.1	5026.9	2.4

ROI ANALYSIS RESULTS

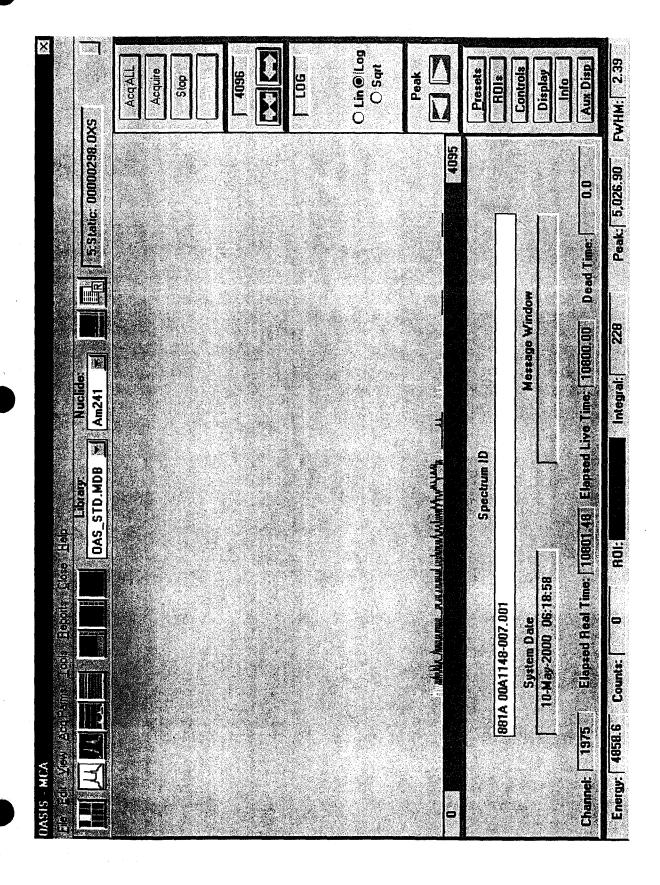
ROI ID	NET COUNTS	BKG/INTERF	CPM	ROI TYPE
Po218	1.3 ± 1.5	0.72	$7.14E-03 \pm 8.10E-03$	Unknown
Po214	-0.2 ± 0.2	0.18	$-9.93E-04 \pm 9.93E-04$	Unknown
Po212	-0.4 ± 0.3	0.36	$-1.99E-03 \pm 1.40E-03$	Unknown
Po210	210.7 ± 15.2	17.34	1.170 ± 0.084	Unknown

NUCLIDE ANALYSIS RESULTS

ROI ID	ASSOC NUC	EMM. PROB	ACTIVITY	MDA
			(dpm/samp)	(dpm)
Po218	Po218	1.000	0.021 ± 0.024	9.36E-02
Po214	Po214	1.000	$-2.92E-03 \pm 2.92E-03$	6.89E-02
Po212		1.000	$-5.85E-03 \pm 4.13E-03$	7.92E-02
Po210	Po210	1.000	3.444 ± 0.253	2.87E-01

Activity reported as of April 21, 2009

APPROVED BY:



Sample ID:

00A1148-008.001

Type:

Unknown

LiveTime: 28,800.00

FWHM

(keV)

2.8

2.8

2.8

6.5

22.892 dpm

Batch ID:

unknowns

Acquisition Start: Analysis Date:

May 02, 2000 16:31:11 May 03, 2000 08:08:44

Procedure:

Po210 count

Device: Analysis Method: Oasis:01:02 ROI Analysis

Spectrum File:

00000517.OXS

Calibrations:

Energy = 5.823E+01 + 2.790E+00 * ChnCalibration Date: April 07, 2000 14:55:56

Coeff. of Correlation: -0.998

Std: 1:2 energy cal

Shape not Calibrated.

Efficiency = $3.089E-01 \pm 4.062E-03$

Calibration Date: April 07, 2000 15:15:30

Std: TS4189

PK EN

(keV)

5826.0

7229.6

8599.7

5245.6

External Recovery

No Ext.Recovery

Original Sample Amount:

 1.000 ± 0.000 samp

Aliquot Amount:

 1.000 ± 0.000 samp

ROI DATA

ROI	ID	ASSOCIATED	EXTE	NTS
#		NUCLIDE	START	END
1	Po218	Po218	5550.0	6104.5
2	Po214	Po214	6588.5	7874.7
3	Po212	Po212	8393.8	8808.6
4	Po210	Po210	2180.3	5343.3

ROI ANALYSIS RESULTS

ROI ID	NET COUNTS	BKG/INTERF	CPM	ROI TYPE
Po218	6.0 ± 2.4	0.00	$0.013 \pm 5.10E-03$	Unknown
Po214	0.3 ± 1.2	0.68	$6.58E-04 \pm 2.52E-03$	Unknown
Po212	3.0 ± 1.7	0.00	$6.25E-03 \pm 3.61E-03$	Unknown
Po210	878.7 ± 30.0	12.31	1.831 ± 0.062	Unknown

NUCLIDE ANALYSIS RESULTS

ROI ID	ASSOC NUC	EMM. PROB	ACTIVITY	MDA
			(dpm/samp)	(dpm)
Po218	Po218	1.000	0.040 ± 0.017	1.82E-02
Po214	Po214	1.000	$2.13E-03 \pm 8.17E-03$	4.21E-02
Po212	Po212	1.000	0.020 ± 0.012	1.82E-02
Po210	Po210	1.000	5.926 ± 0.217	1.19E-01

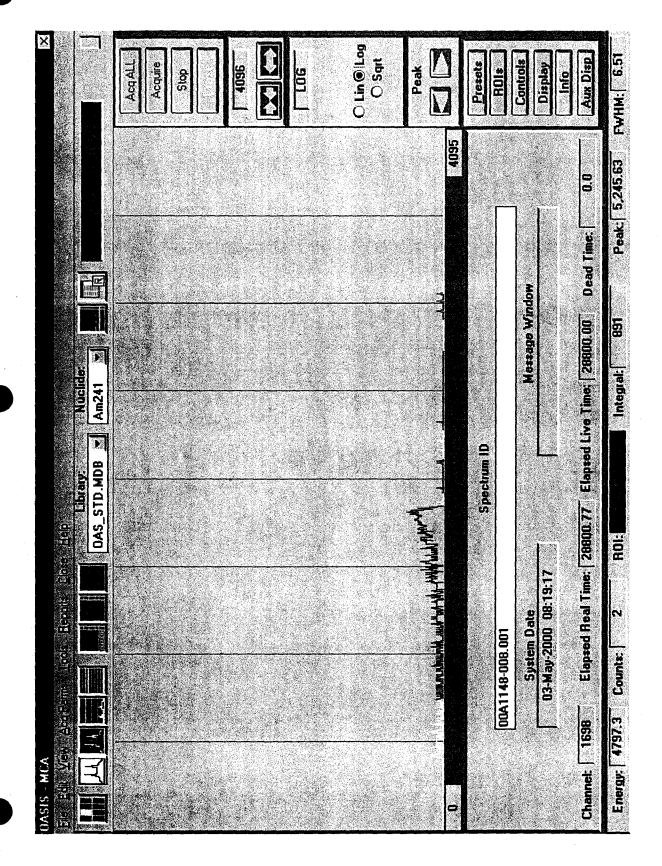
Activity reported as of May

ANALYSIS REVIEWED BY:

APPROVED BY:

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Sample ID:

00A1148-009.001

Type:

Unknown

LiveTime: 28,800.00

Batch ID:

unknowns

Acquisition Start: Analysis Date:

May 03, 2000 08:42:23 May 03, 2000 16:42:46

Procedure:

Po210 count

Device:

Oasis:01:04

Analysis Method:

ROI Analysis

Spectrum File:

00000527.OXS

Calibrations:

Energy = 8.600E+01 + 2.746E+00 * Chn Coeff. of Correlation: -0.998

Calibration Date: April 12, 2000 10:28:56

Std: 1:4 energy cal

Shape not Calibrated.

Efficiency = $3.084E-01 \pm 4.055E-03$

Calibration Date: April 12, 2000 11:45:10

Std: TS4189

External Recovery

No Ext.Recovery

Original Sample Amount:

 1.000 ± 0.000 samp

Aliquot Amount:

 1.000 ± 0.000 samp

ROI DATA

ROI	ID	ASSOCIATED	EXTENTS		PK EN	. FWHM
#		NUCLIDE	START	END	(keV)	(keV)
1	Po218	Po218	5550.0	6104.5	5826.2	2.7
2	Po214	Po214	6588.5	7874.7	7232.4	15.8
3	Po212	Po212	8393.8	8808.6	8600.1	2.7
4	Po210	Po210	2180.3	5343.3	5186.2	3.6

ROI ANALYSIS RESULTS

ROI ID		NET COUNTS	BKG/INTERF	CPM	ROI TYPE
Po218		2.7 ± 2.2	1.33	$5.56E-03 \pm 4.61E-03$	Unknown
Po214		-0.7 ± 0.7	0.67	$-1.39E-03 \pm 1.39E-03$	Unknown
Po212		6.0 ± 2.4	0.00	$0.013 \pm 5.10E-03$	Unknown
Po210	•	552.7 ± 23.9	11.33	1.151 ± 0.050	Unknown

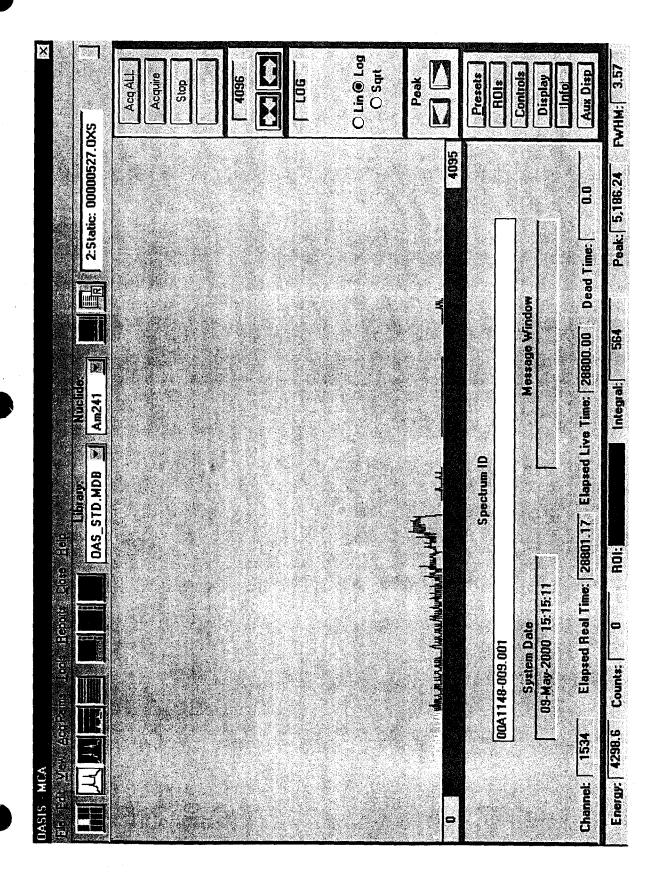
NUCLIDE ANALYSIS RESULTS

ROI ID	ASSOC NUC	EMM. PROB	ACTIVITY	MDA
			(dpm/samp)	(dpm)
Po218	Po218	1.000	0.018 ± 0.015	5.14E-02
Po214	Po214	1.000	$-4.50E-03 \pm 4.50E-03$	4.17E-02
Po212	Po212	1.000	0.041 ± 0.017	1.83E-02
Po210	Po210	1.000	3.734 ± 0.169	1.15E-01

Activity reported as of May 03, 2000 08:42:23

ANALYSIS REVIEWED BY:

APPROVED BY:



RFETS; Golden, CO Apr 18, 2000 14:46:41

Sample ID: 883B coupon 00A1148-010.001 Unknown Type:

Batch ID:

unknown

Acquisition Start: Analysis Date:

April 18, 2000 13:06:25 April 18, 2000 14:46:35

Procedure:

polonium210 samples

Device:

Oasis:02:03

Analysis Method:

ROI Analysis

Spectrum File:

00000284.OXS

Calibrations:

Energy = 1.604E+02 + 2.389E+00 * Chn Coeff. of Correlation: -0.998Calibration Date: April 04, 2000 15:34:53 Std: 2:3 energy cal-

Shape not Calibrated.

Efficiency = $3.357E-01 \pm 4.547E-03$

Calibration Date: April 05, 2000 09:20:34

Std: AS 4188

LiveTime: 6,005.32

External Recovery

No Ext.Recovery

Original Sample Amount:

 1.000 ± 0.000 samp

Aliquot Amount:

 1.000 ± 0.000 samp

ROI DATA

R	OI.	ID	ASSOCIATED	EX	EXTENTS		FWHM
	#		NUCLIDE	START	END	(keV)	(keV)
	1	Po218	Po218	5552.6	6077.8	5815.3	1.2
	2	Po214	Po214	7420.0	7770.1	7595.1	1.2
ì	3	Po212		8521.5	8850.6	8686.9	1.2
	4	Po210	Po210	2263.7	5322.8	5163.1	2.4

ROI ANALYSIS RESULTS

ROI ID	NET COUNTS	BKG/INTERF	CPM	ROI TYPE
Po218	-0.1 ± 0.1	0.14	$-1.39E-03 \pm 1.39E-03$	Unknown
Po214	-0.3 ± 0.2	0.28	$-2.78E-03 \pm 1.96E-03$	Unknown
Po212	0.0 ± 0.0	0.00	$0.00E+00 \pm 0.00E+00$	Unknown
Po210	140.3 ± 12.1	5.70	1.402 ± 0.121	Unknown

NUCLIDE ANALYSIS RESULTS

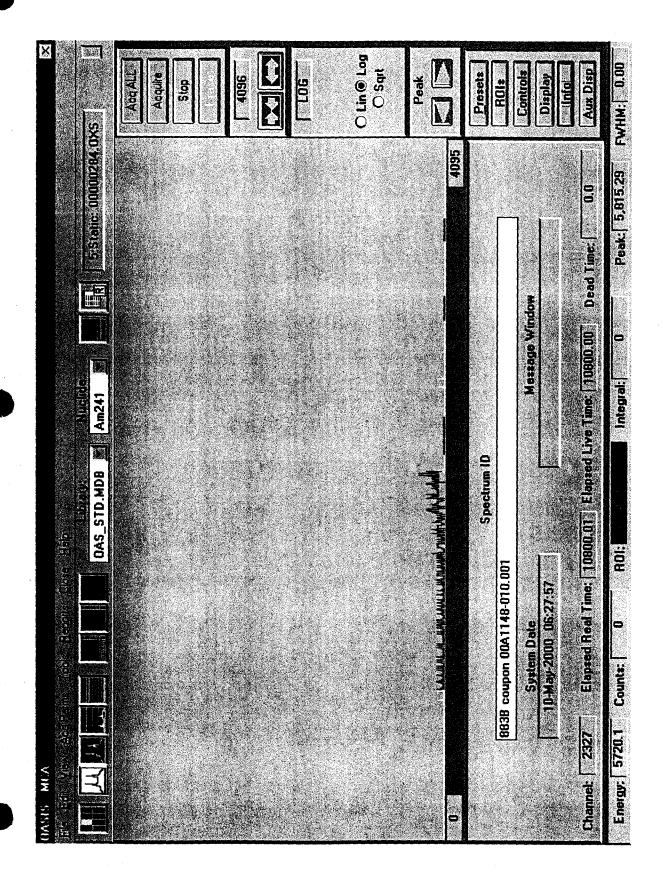
ROI ID	ASSOC NUC	EMM. PROB	ACTIVITY.	MDA
			(dpm/samp)	(dpm)
Po218	Po218	1.000	$-4.14E-03 \pm 4.14E-03$	1.19E-01
Po214	Po214	1.000	$-8.27E-03 \pm 5.85E-03$	1.36E-01
Po212		1.000	$0.00E+00 \pm 0.00E+00$	8.05E-02
Po210	Po210	1.000	4.175 ± 0.365	3.30E-01

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Activity reported as of April 18, 2000

ANALYSIS REVIEWED BY:

APPROVED BY:



RFETS; Golden, CO Apr 24, 2000 09:54:10

Sample ID:

883B coupon 00A1148-011.001

Type:

Unknown

Batch ID:

unknown

Acquisition Start:

April 18, 2000 13:06:24 April 24, 2000 09:54:04

Analysis Date:

polonium210 samples

Procedure: Device:

Oasis:02:02

Analysis Method:

ROI Analysis

Spectrum File:

00000283.OXS

LiveTime: 10,800.00

Calibrations:

Energy = 1.436E+01 +2.491E+00 * Chn Coeff. of Correlation: -0.998

Calibration Date: April 04, 2000 15:25:18

Std: 2:2 energy calibration

Shape not Calibrated.

Efficiency = $3.436E-01 \pm 4.641E-03$

Calibration Date: April 05, 2000 09:05:57

Std: AS 4188

External Recovery

No Ext.Recovery

Original Sample Amount:

Aliquot Amount:

 1.000 ± 0.000 samp

 1.000 ± 0.000 samp

ROI DATA

R	OI	ID	ASSOCIATED	EXT	ENTS	PK EN	FWHM
	#		NUCLIDE	START	END	(keV)	(keV)
	1	Po218	Po218	5552.6	6077.8	5814.5	2.5
	2	Po214	Po214	7420.0	7770.1	7593.4	2.5
	3	Po212		8521.5	8850.6	8687.1	2.5
•	4	Po210	Po210	2263.7	5322.8	5159.2	4.7

ROI ANALYSIS RESULTS

ROI ID	NET COUNTS	BKG/INTERF	CPM	ROI TYPE
Po218	0.5 ± 1.5	1.50	$2.78E-03 \pm 8.56E-03$	Unknown
Po214	0.3 ± 1.1	0.75	$1.39E-03 \pm 6.05E-03$	Unknown
Po212	1.0 ± 1.0	0.00	$5.56E-03 \pm 5.56E-03$	Unknown
Po210	268.0 ± 16.8	12.00	1.489 ± 0.093	Unknown

NUCLIDE ANALYSIS RESULTS

ROI ID	ASSOC NUC	EMM. PROB	ACTIVITY	MDA
			(dpm/samp)	(dpm)
Po218	Po218	1.000	$8.09E-03 \pm 0.025$	1.17E-01
Po214	Po214	1.000	$4.04E-03 \pm 0.018$	9.53E-02
Po212		1.000	0.016 ± 0.016	4.38E-02
Po210	Po210	1.000	4.334 ± 0.278	2.50E-01

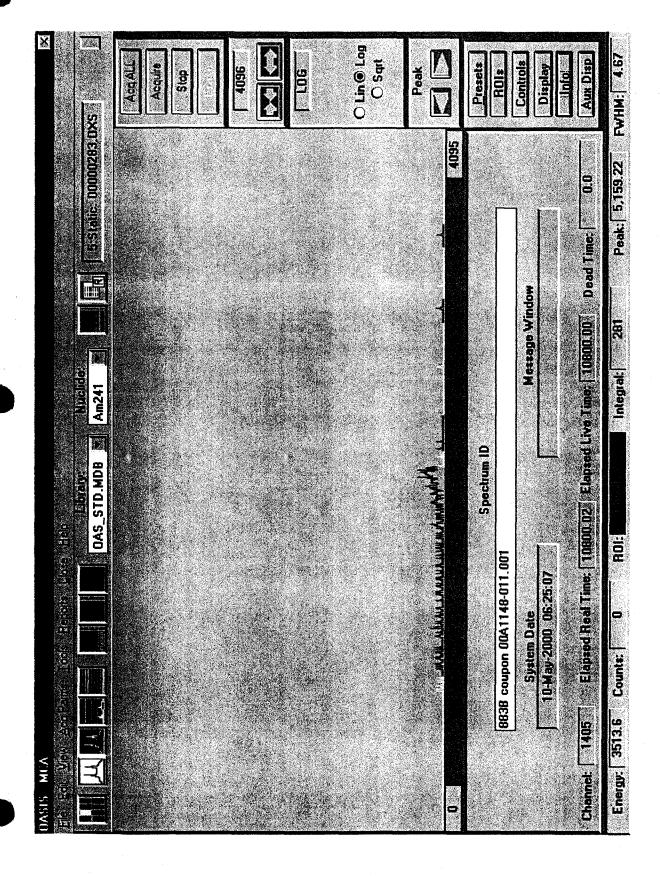
Activity reported as of Apri

ANALYSIS REVIEWED BY:

APPROVED BY:

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Sample ID:

00A1148-012.001

Type:

Unknown

Batch ID:

unknowns

Acquisition Start:

May 03, 2000 16:57:27

Analysis Date:

May 04, 2000 07:06:32

Procedure:

Po210 count

Device:

Oasis:01:03

Analysis Method:

ROI Analysis

Spectrum File:

00000538.OXS

LiveTime: 28,800.00

Calibrations:

Energy = 6.596E+01 + 2.779E+00 * Chn Coeff. of Correlation: -0.998

Calibration Date: April 24, 2000 13:03:27

Std: 1:3 Energy Cal

Shape not Calibrated.

Efficiency = $3.120E-01 \pm 4.098E-03$

Calibration Date: April 24, 2000 10:05:48

Std: TS4189

External Recovery

No Ext.Recovery

Original Sample Amount:

 1.000 ± 0.000

Aliquot Amount:

 1.000 ± 0.000 samp

ROI DATA

ROI	ID	ASSOCIATED	EXTE	INTS	PK EN	FWHM
#		NUCLIDE	START	END	(keV)	(keV)
1	Po218	Po218	5550.0	6104.5	6055.4	2.8
2	Po214	Po214	6588.5	7874.7	7231.0	2.8
3	Po212	Po212	8393.8	8808.6	8601.2	2.8
4	Po210	Po210	2180.3	5343.3	5179.9	3.9

ROI ANALYSIS RESULTS

ROI ID	NET CO	DUNTS	BKG/INTERF	(CPM		ROI TYPE
Po218	$18.7 \pm$	4.6	1.33	0.039	\pm 9.52	E-03	Unknown
Po214	$-1.7 \pm$	1.7	2.67	-3.47E-03	± 3.47	E-03	Unknown
Po212	$9.0 \pm$	3.0	0.00	0.019	± 6.25	E-03	Unknown
Po210	836.0 ±	29.4	18.00	1.742	± 0.06	51	Unknown

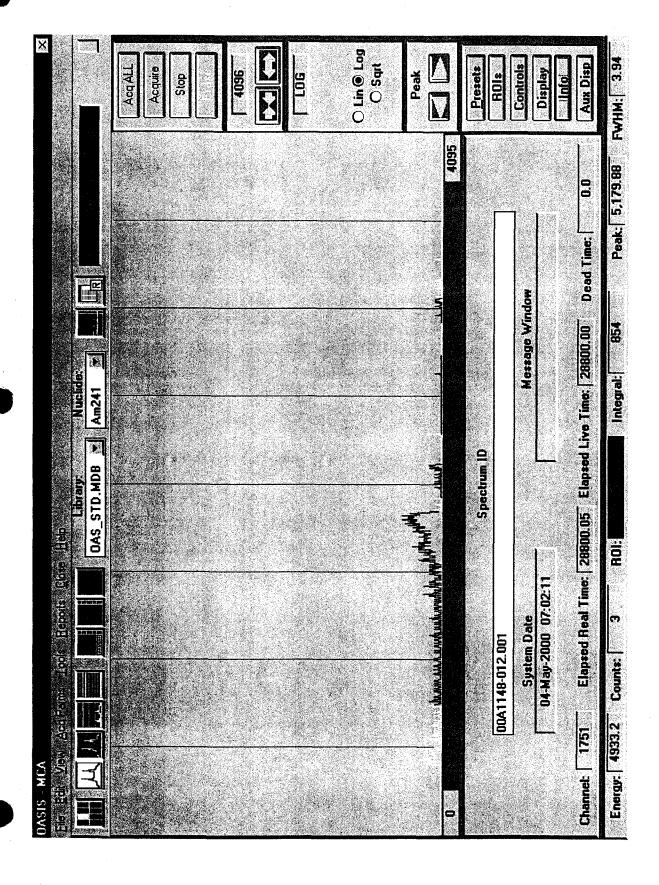
NUCLIDE ANALYSIS RESULTS

ROI ID	ASSOC NUC	EMM. PROB	ACTIVITY	MDA
			(dpm/samp)	(dpm)
Po218	Po218	1.000	0.125 ± 0.031	5.08E-02
Po214	Po214	1.000	$-1.11E-02 \pm 0.011$	6.44E-02
Po212	Po212	1.000	0.060 ± 0.020	1.81E-02
Po210	Po210	1.000	5.582 ± 0.210	1.38E-01

Activity reported as of May

ANALYSIS REVIEWED BY:

APPROVED BY:



00A1148-014.001

Type:

Unknown

Batch ID:

unknowns

Acquisition Start: Analysis Date:

April 25, 2000 14:44:23 April 25, 2000 18:07:01

Procedure:

Po210 count

Device: Analysis Method: Oasis:01:03 ROI Analysis

Spectrum File:

00000491.OXS

LiveTime: 10,800.00

Calibrations:

Energy = 6.596E+01 + 2.779E+00 * Chn Coeff. of Correlation: -0.998

Calibration Date: April 24, 2000 13:03:27

Std: 1:3 Energy Cal

Shape not Calibrated.

Efficiency = $3.120E-01 \pm 4.098E-03$

Calibration Date: April 24, 2000 10:05:48

Std: TS4189

External Recovery

No Ext.Recovery

Original Sample Amount:

 1.000 ± 0.000

Aliquot Amount:

 1.000 ± 0.000 samp

ROI DATA

ROI	ID	ASSOCIATED	EXTE	NTS	PK EN	FWHM
#		NUCLIDE	START	END	(keV)	(keV)
1	Po218	Po218	5550.0	6104.5	5827.5	2.8
2	Po214	Po214	6588.5	7874.7	7231.0	2.8
. 3	Po212	Po212	8393.8	8808.6	8601.2	416.9
4	Po210	Po210	2180.3	5343.3	4715.7	4.9

ROI ANALYSIS RESULTS

ROI ID	NET COUNTS	BKG/INTERF	CPM	ROI TYPE
Po218	1.7 ± 1.4	0.33	$9.29E-03 \pm 7.89E-03$	Unknown
Po214	1.6 ± 1.4	0.42	$8.77E-03 \pm 7.90E-03$	Unknown
Po212	0.0 ± 0.0	0.05	$-2.60E-04 \pm 2.60E-04$	Unknown
Po210	444.1 ± 21.2	6.94	2.467 ± 0.118	Unknown

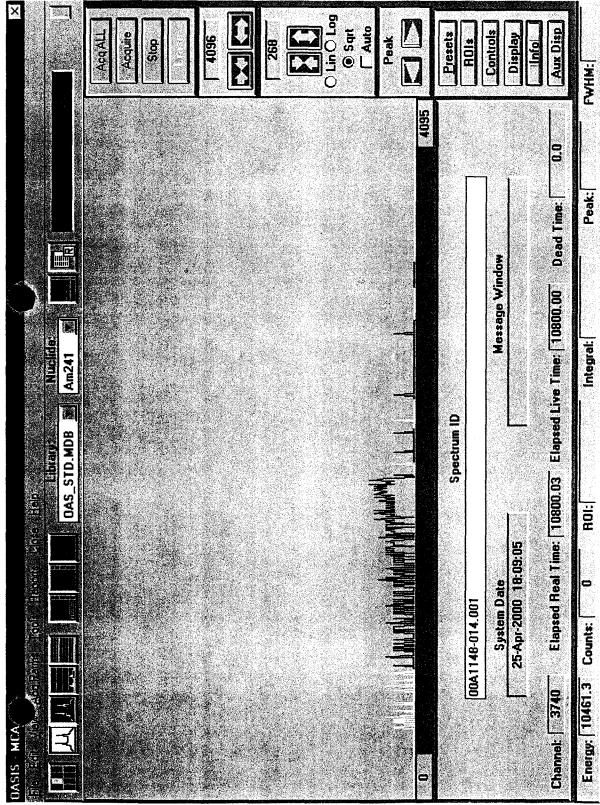
NUCLIDE ANALYSIS RESULTS

ROI ID	ASSOC NUC	EMM. PROB	ACTIVITY	MDA
			(dpm/samp)	(dpm)
Po218	Po218	1.000	0.030 ± 0.025	8.25E-02
Po214	Po214	1.000	0.028 ± 0.025	8.71E-02
Po212	Po212	1.000	$-8.35E-04 \pm 8.35E-04$	6.12E-02
Po210	Po210	1.000	7.907 ± 0.392	2.06E-01

Activity reported as of April,

ANALYSIS REVIEWED BY:

APPROVED BY:



Sample ID: 00A1148-015.001 Type: Unknown

Batch ID: unknowns

Acquisition Start: May 05, 2000 07:09:38 Analysis Date: May 05, 2000 14:25:24

Procedure: Po210 count Device: Oasis:01:04 Analysis Method: ROI Analysis

Spectrum File: 00000545.OXS LiveTime: 25,200.00

Calibrations:

Energy = 8.600E+01 + 2.746E+00 * Chn Coeff. of Correlation: -0.998Calibration Date: April 12, 2000 10:28:56 Std: 1:4 energy cal

Shape not Calibrated.

Efficiency = $3.084E-01 \pm 4.055E-03$

Calibration Date: April 12, 2000 11:45:10 Std: TS4189

External Recovery No Ext.Recovery

Original Sample Amount:

 1.000 ± 0.000 Aliquot Amount: 1.000 ± 0.000

ROI DATA

ROI	ID	ASSOCIATED	EXTE	NTS	PK EN	FWHM
#		NUCLIDE	START	END	(keV)	(keV)
1	Po218	Po218	5550.0	6104.5	6048.6	3.4
2	Po214	Po214	6588.5	7874.7	7232.4	2.7
3	Po212	Po212	8393.8	8808.6	8723.7	4.4
4	Po210	Po210	2180.3	5343.3	5101.1	6.0

ROI ANALYSIS RESULTS

ROI ID	NET COUNTS	BKG/INTERF	CPM	ROI TYPE
Po218	24.0 ± 4.9	0.00	0.057 ± 0.012	Unknown
Po214	10.8 ± 3.6	1.17	$0.026 \pm 8.48E-03$	Unknown
Po212	33.8 ± 6.0	1.17	0.081 ± 0.014	Unknown
Po210	898.9 ± 30.3	11.08	2.140 ± 0.072	Unknown

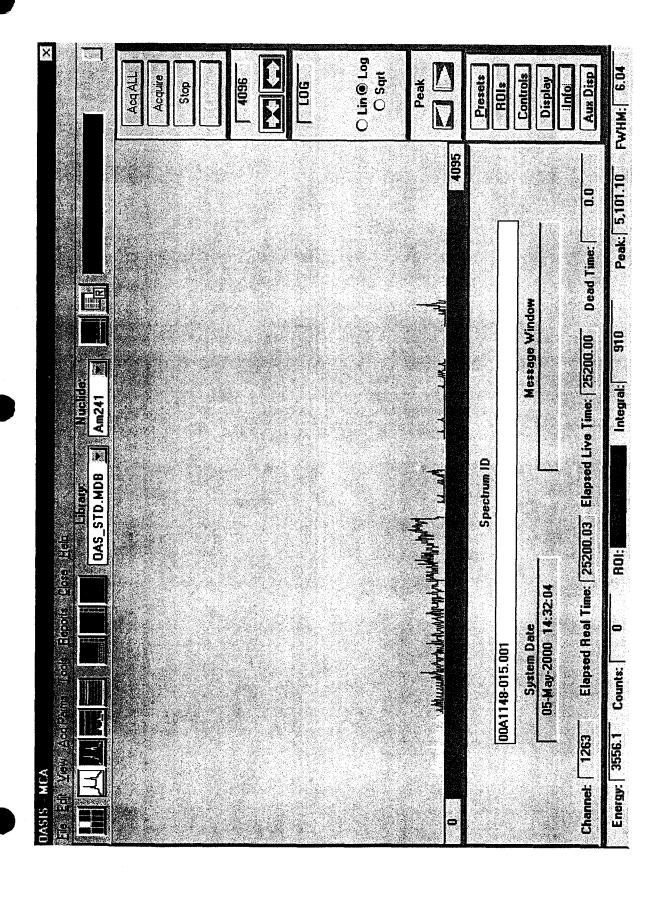
NUCLIDE ANALYSIS RESULTS

ROI ID	ASSOC NUC	EMM. PROB	ACTIVITY	MDA
			(dpm/samp)	(dpm)
Po218	Po218	1.000	0.185 ± 0.038	2.09E-02
Po214	Po214	1.000	0.084 ± 0.028	5.54E-02
Po212	Po212	1.000	0.261 ± 0.046	5.54E-02
Po210	Po210	1.000	6.940 ± 0.251	1.27E-01

Activity reported as of May 05,

ANALYSIS REVIEWED BY:

APPROVED BY:



Sample ID: 00A1148-016.001 Type: Unknown

Batch ID:

unknowns

April 25, 2000 14:34:47 Acquisition Start: Analysis Date: April 25, 2000 18:32:19

Procedure: Po210 count Device: Oasis:01:01 Analysis Method: ROI Analysis Spectrum File: 00000490.OXS

LiveTime: 10,800.00

Calibrations:

Energy = 3.865E+01 + 2.790E+00 * Chn Coeff. of Correlation: -0.998Calibration Date: April 03, 2000 17:45:10 Std: 1:1 energy cal

Shape not Calibrated.

Efficiency = $3.041E-01 \pm 4.004E-03$

Calibration Date: April 07, 2000 09:49:29 Std: TS4189

External Recovery No Ext. Recovery

Original Sample Amount:

 1.000 ± 0.000 samp Aliquot Amount: 1.000 ± 0.000 samp

ROI DATA

ROI ID ASSOCIATED PK EN EXTENTS FWHM NUCLIDE START END (keV) (keV) 1 Po218 5550.0 6104.5 2.8 Po218 5826.0 2 Po214 7874.7 7229.6 2.8 Po214 6588.5 3 Po212 Po212 8393.8 8808.6 8599.7 1.4 4 Po210 Po210 2180.3 5343.3 5150.8 3.8

ROI ANALYSIS RESULTS

ROI ID NET COUNTS BKG/INTERF CPM ROI TYPE Po218 0.5 ± 1.0 $2.95E-03 \pm 5.62E-03$ Unknown 0.47 Po214 0.7 ± 1.0 0.28 $3.99E-03 \pm 5.59E-03$ Unknown -0.1 ± 0.1 $-5.21E-04 \pm 3.68E-04$ Unknown Po212 0.09 2.191 ± 0.111 Po210 394.4 ± 20.0 6.56 Unknown

NUCLIDE ANALYSIS RESULTS

ROI ID	ASSOC NUC	EMM. PROB	ACTIVITY	MDA
			(dpm/samp)	(dpm)
Po218	Po218	1.000	$9.71E-03 \pm 0.018$	9.16E-02
Po214	Po214	1.000	0.013 ± 0.018	8.21E-02
Po212	Po212	1.000	$-1.71E-03 \pm 1.21E-03$	6.83E-02
Po210	Po210	1.000	7.207 ± 0.378	2.07E-01

Activity reported as of April

ANALYSIS REVIEWED BY:

APPROVED BY:

Peak: 7,229.64 FWHM: 2,79 O Lin ® Log 907 O Sqrt Presets Display nannet: | 2562 | Elapsed Real Time: | 10800.01 | Elapsed Live Time: | 10800.00 | Dead Time: | 0.0 Nuclide DAS_STD.MDB * Am241 Edit View Acq Paims Iools Reports Close Help :nergy: 7188.3 Counts: 0 RDI: 25-Apr-2000 18:25:06 System Date 00A1148-016.001

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00A1148-017.001

Type:

Unknown

LiveTime: 10,800.00

Batch ID:

unknowns

Acquisition Start:

April 25, 2000 11:09:58

Analysis Date:

April 25, 2000 14:11:29 Po210 count

Procedure: Device:

Oasis:01:01

Analysis Method:

ROI Analysis

Spectrum File:

00000486.OXS

Calibrations:

Energy = 3.865E+01 + 2.790E+00 * Chn Coeff. of Correlation: -0.998

Calibration Date: April 03, 2000 17:45:10

Std: 1:1 energy cal

Shape not Calibrated.

Efficiency = $3.041E-01 \pm 4.004E-03$

Calibration Date: April 07, 2000 09:49:29 Std: TS4189

External Recovery

No Ext.Recovery

Original Sample Amount:

 1.000 ± 0.000 samp

Aliquot Amount:

 1.000 ± 0.000 samp

ROI DATA

KOT	ID	ASSOCIATED
#		NUCLIDE
1	Po218	Po218
2	Po214	Po214
3	Po212	Po212
4	Po210	Po210

EXT	ENTS	PK EN	FWHM
START	END	(keV)	(keV)
5550.0	6104.5	5826.0	2.8
6588.5	7874.7	7229.6	2.8
8393.8	8808.6	8599.7	1.4
2180.3	5343.3	5178.7	6.5

ROI ANALYSIS RESULTS

ROI ID	NET COUNTS	BKG/INTERF	CPM	ROI TYPE
Po218	0.5 ± 1.0	0.47	$2.95E-03 \pm 5.62E-03$	Unknown
Po214	1.7 ± 1.4	0.28	$9.55E-03 \pm 7.88E-03$	Unknown
Po212	-0.1 ± 0.1	0.09	-5.21E-04 ± 3.68E-04	Unknown
Po210	280.4 ± 17.0	6.56	1.558 ± 0.094	Unknown

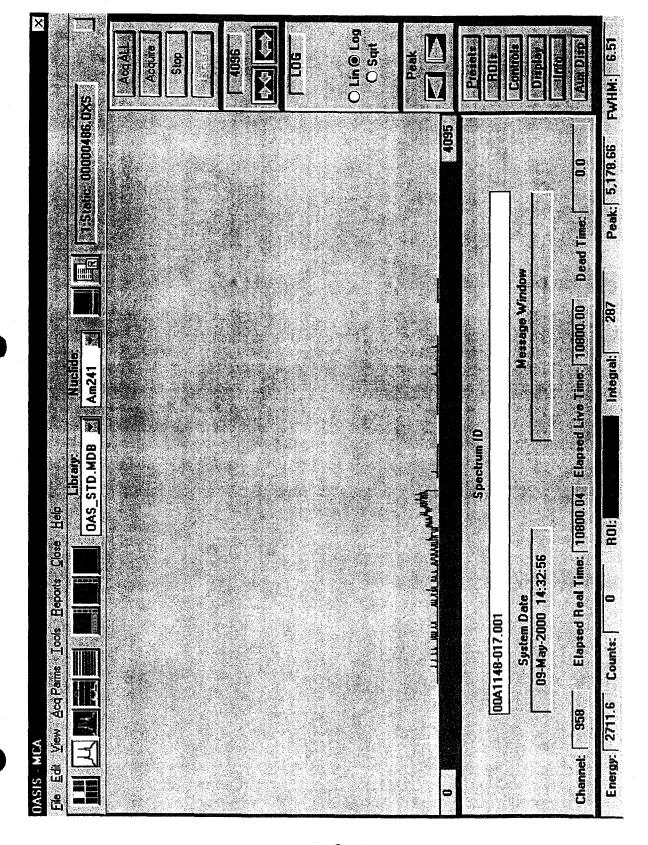
NUCLIDE ANALYSIS RESULTS

ROI ID	ASSOC NUC	EMM. PROB	ACTIVITY	MDA
			(dpm/samp)	(dpm)
Po218	Po218	1.000	$9.71E-03 \pm 0.018$	9.16E-02
Po214	Po214	1.000	0.031 ± 0.026	8.21E-02
Po212	Po212	1.000	$-1.71E-03 \pm 1.21E-03$	6.83E-02
Po210	Po210	1.000	5.124 ± 0.317	.2.07E-01

Activity reported as of Apri

ANALYSIS REVIEWED BY:

APPROVED BY:



4

Sample ID: 00A1148-018.001 Type: Unknown

Batch ID:

unknowns

Acquisition Start:

May 04, 2000 13:14:27

Analysis Date:

May 04, 2000 16:17:04

Procedure: Device:

Po210 count

Analysis Method:

Oasis:01:03 ROI Analysis

Spectrum File:

LiveTime: 10,800.00 00000541.OXS

Calibrations:

Energy = 6.596E+01 + 2.779E+00 * Chn Coeff. of Correlation: -0.998

Calibration Date: April 24, 2000 13:03:27

Std: 1:3 Energy Cal

Shape not Calibrated.

Efficiency = $3.120E-01 \pm 4.098E-03$

Calibration Date: April 24, 2000 10:05:48

Std: TS4189

External Recovery No Ext.Recovery

Air Filter Analysis Parameters:

Sample Type:

Unknown

Air Filter Time on:

May 04, 2000 13:12:09

Air Filter Time off: May 04, 2000 13:12:09

Total Collect Time:

0.000 hours

Air Volume:

 1.000 ± 0.000 samp

ROI DATA

ROI	ID	ASSOCIATED	EXT	ENTS	PK EN	FWHM
#		NUCLIDE	START	END	(keV)	(keV)
1	Po218	Po218	5550.0	6104.5	5827.5	2.8
2	Po214	Po214	6588.5	7874.7	7231.0	2.8
3	Po212	Po212	8393.8	8808.6	8601.2	2.8
4	Po210	Po210	2180.3	5343.3	5174.3	3.7

ROI ANALYSIS RESULTS

ROI ID	NET	COUNTS	BKG/INTERF	CPM	ROI TYPE
Po218	5.5	± 2.5	0.50	0.031 ± 0.014	Unknown
Po214	0.0	± 1.1	1.00	$0.00E+00 \pm 6.21E-03$	Unknown
Po212	4.0	± 2.0	0.00	0.022 ± 0.011	Unknown
Po210	189.3	± 14.1	6.75	1.051 ± 0.078	Unknown

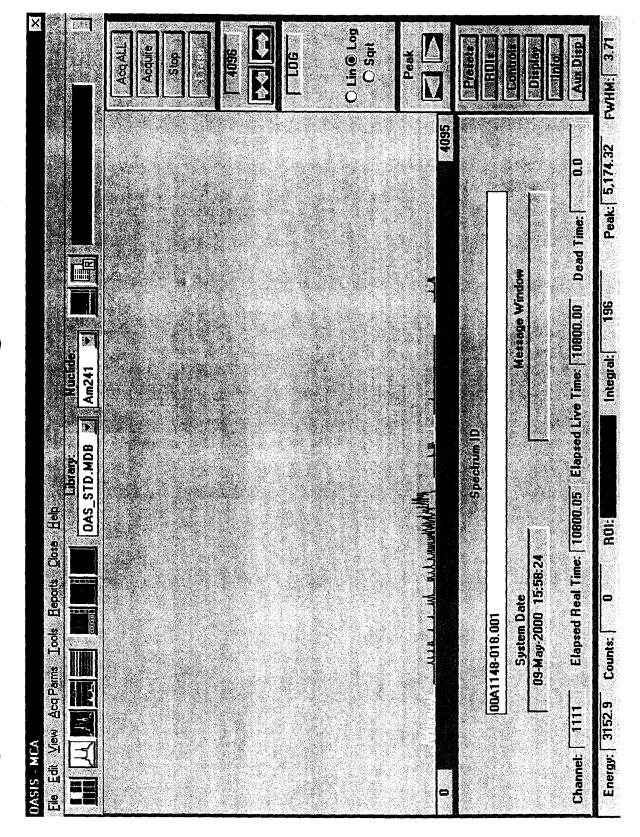
NUCLIDE ANALYSIS RESULTS

ROI ID	ASSOC NUC	EMM. PROB	ACTIVITY	MDA
			(dpm/samp)	(dpm/samp)
Po218	Po218	1.000	0.098 ± 0.044	9.45E-02
Po214	Po214	1.000	$0.00E+00 \pm 0.020$	1.14E-01
Po212	Po212	1.000	0.071 ± 0.036	4.82E-02
Po210	Po210	1.000	3.370 ± 0.254	2.18E-01

Activity reported as of May 0

ANALYSIS REVIEWED BY:

APPROVED BY:



Sample ID: 00A1148-019.001 Type: Unknown

Batch ID:

unknowns

Acquisition Start:

April 24, 2000 08:34:57

Analysis Date:

April 24, 2000 12:00:58

Procedure: Device:

Po210 count

Analysis Method:

Oasis:01:01

Spectrum File:

ROI Analysis 00000460.0XS

Calibrations:

Energy = 3.865E+01 +2.790E+00 * Chn Coeff. of Correlation: -0.998

Calibration Date: April 03, 2000 17:45:10

Std: 1:1 energy cal

LiveTime: 12,297.00

Shape not Calibrated.

Efficiency = $3.041E-01 \pm 4.004E-03$

Calibration Date: April 07, 2000 09:49:29

Std: TS4189

External Recovery

No Ext.Recovery

Original Sample Amount:

Aliquot Amount:

 1.000 ± 0.000 samp

 1.000 ± 0.000 samp

ROI DATA

ROI	ID	ASSOCIATED	EXI	TENTS	PK EN	FWHM
#		NUCLIDE	START	END	(keV)	(keV)
1	Po218	Po218	5550.0	6104.5	5826.0	2.8
2	Po214	Po214	6588.5	7874.7	7229.6	1.4
3	Po212	Po212	8393.8	8808.6	8599.7	1.4
4	Po210	Po210	2180.3	5343.3	5187.0	3.5

ROI ANALYSIS RESULTS

ROI ID	NET COUNTS	BKG/INTERF	CPM	ROI TYPE
Po218	0.5 ± 1.0	0.53	$2.28E-03 \pm 4.95E-03$	Unknown
Po214	-0.3 ± 0.1	0.32	$-1.56E-03 \pm 6.38E-04$	Unknown
Po212	-0.1 ± 0.1	0.11	$-5.21E-04 \pm 3.68E-04$	Unknown
Po210	732.5 ± 27.2	7.47	3.574 ± 0.133	Unknown

NUCLIDE ANALYSIS RESULTS

ROI ID	ASSOC NUC	EMM. PROB	ACTIVITY	MDA
			(dpm/samp)	(dpm)
Po218	Po218	1.000	$7.48E-03 \pm 0.016$	8.30E-02
Po214	Po214	1.000	$-5.14E-03 \pm 2.10E-03$	7.41E-02
Po212	Po212	1.000	$-1.71E-03 \pm 1.21E-03$	6.11E-02
Po210	Po210	1.000	11.755 ± 0.463	1.92E-01

Activity reported as of April 24, 2000 08:34:57

ANALYSIS REVIEWED BY:

APPROVED BY:

J Brancon 4/24/0

O Lin ® Log O Sqrt FWHM: 3.49 Peak 9601 Controls \$100 RUIS Display T,Static: 00000460.0XS Peak: 5,187.03 Elapsed Real Time: 12297.01 Elapsed Live Time: 12297.00 Dead Time: 0.0 Integral: Am241 DAS_STD.MDB 💌 File Edit View Acq Parms Loois Beports Close Help ROI: 09-May-2000 14:49:45 System Date Counts: 1 00A1148-019.001 Channet: 1816 Energy: 5105.8 DASIS - MCA |-

3

Oasis Device # 2

RFETS; Golden, CO Apr 24, 2000 13:13:21

Sample ID: 00A1148-020.001 Type: Unknown

Batch ID:

unknown

Acquisition Start:

April 24, 2000 09:31:54 April 24, 2000 13:12:30

Analysis Date: Procedure:

polonium210 samples

Device:

Oasis:02:01

Analysis Method:

ROI Analysis

Spectrum File:

00000301.oxs

LiveTime: 10,800.00

Calibrations:

Energy = 2.127E+02 +2.333E+00 * Chn Coeff. of Correlation: -0.998

Calibration Date: March 14, 2000 09:19:39

Std: 2:1 energy cal

Shape not Calibrated.

Efficiency = $3.393E-01 \pm 4.339E-03$

Calibration Date: August 11, 1999 13:14:16

Std: AS 4188

External Recovery

No Ext.Recovery

Original Sample Amount:

 1.000 ± 0.000 samp

Aliquot Amount:

 $1.000 \pm 0.000 \text{ samp}$

ROI DATA

ROI	ID	ASSOCIATED	EXTE	NTS	PK EN	FWHM
#		NUCLIDE	START	END	(keV)	(keV)
1	Po218	Po218	5552.6	6077.8	5814.6	1.2
2	Po214	Po214	7420.0	7770.1	7594.8	2.3
3	Po212		8521.5	8850.6	8684.3	1.2
4	Po210	Po210	2263.7	5402.1	5107.6	3.5

ROI ANALYSIS RESULTS

ROI ID	NET COUN'	TS BKG/INTERF	CPM	ROI TYPE
Po218	-0.8 ± 0.3	2 0.76	$-4.23E-03 \pm 1.27E-03$	Unknown
Po214	0.9 ± 1.0	0.07	5.17E-03 ± 5.57E-03	Unknown
Po212	-0.1 ± 0.1	1 0.14	$-7.69E-04 \pm 5.43E-04$	Unknown
Po210	544.7 ± 23	.6 13.35	3.026 ± 0.131	Unknown

NUCLIDE ANALYSIS RESULTS

ROI ID	ASSOC NUC	EMM. PROB	ACTIVITY	MDA
			(dpm/samp)	(dpm)
Po218	Po218	1.000	$-1.25E-02 \pm 3.76E-03$	9.29E-02
Po214	Po214	1.000	0.015 ± 0.016	5.90E-02
Po212		1.000	$-2.27E-03 \pm 1.60E-03$	6.50E-02
Po210	Pò210	1.000	8.918 ± 0.404	2.48E-01

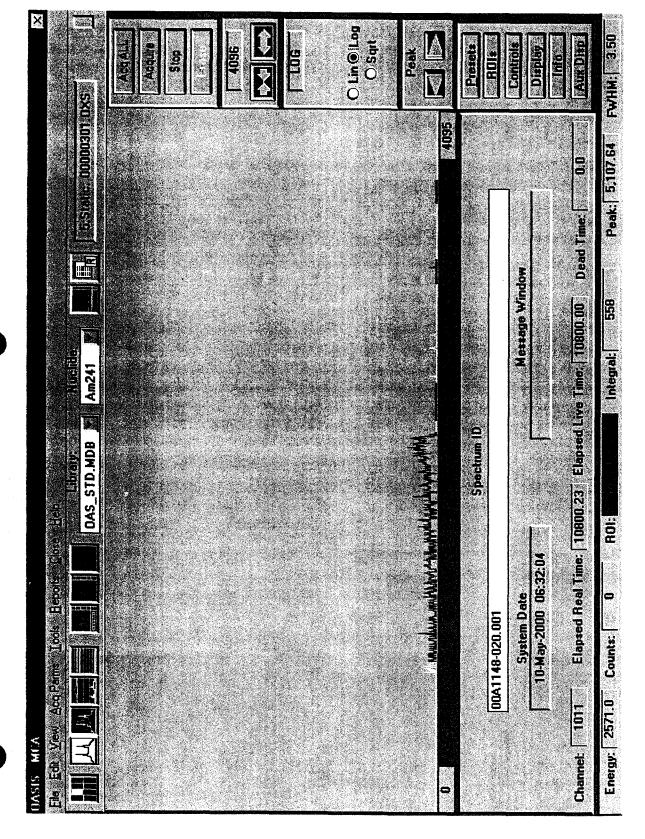
Activity reported as of April 2

2000 **9**3 31:54

ANALYSIS REVIEWED BY:

APPROVED BY:

5/9/00



00A1148-021.001

Type:

Unknown

Batch ID:

unknowns

Acquisition Start:

May 03, 2000 16:40:24

Analysis Date:

May 04, 2000 09:10:00

Procedure:

Po210 count

Device: Analysis Method: Oasis:01:01 ROI Analysis

Spectrum File:

00000533.OXS

LiveTime: 51,200.00

Calibrations:

Energy = 3.865E+01 + 2.790E+00 * Chn Coeff. of Correlation: -0.998

Calibration Date: April 03, 2000 17:45:10

Std: 1:1 energy cal

Shape not Calibrated.

Efficiency = $3.041E-01 \pm 4.004E-03$

Calibration Date: April 07, 2000 09:49:29

Std: TS4189

External Recovery

No Ext.Recovery

Original Sample Amount:

Aliquot Amount:

 1.000 ± 0.000 samp

 1.000 ± 0.000 samp

ROI DATA

ROI	ID	ASSOCIATED	EXT	ENTS	PK EN	FWHM
#		NUCLIDE	START	END	(keV)	(keV)
1	Po218	Po218	5550.0	6104.5	6046.5	3.5
2	Po214	Po214	6588.5	7874.7	7676.1	4.2
3	Po212	Po212	8393.8	8808.6	8772.8	11.2
4	Po210	Po210	2180.3	5343.3	5228.9	6.2

ROI ANALYSIS RESULTS

ROI ID	NET COUNTS	BKG/INTERF	CPM	ROI TYPE
Po218	47.6 ± 7.3	2.37 .	$0.056 \pm 8.52E-03$	Unknown
Po214	30.8 ± 5.8	1.19	$0.036 \pm 6.77E-03$	Unknown
Po212	47.3 ± 7.6	4.74	$0.055 \pm 8.90E-03$	Unknown
Po210	$2,565.6 \pm 51.4$	34.37	3.007 ± 0.060	Unknown

NUCLIDE ANALYSIS RESULTS

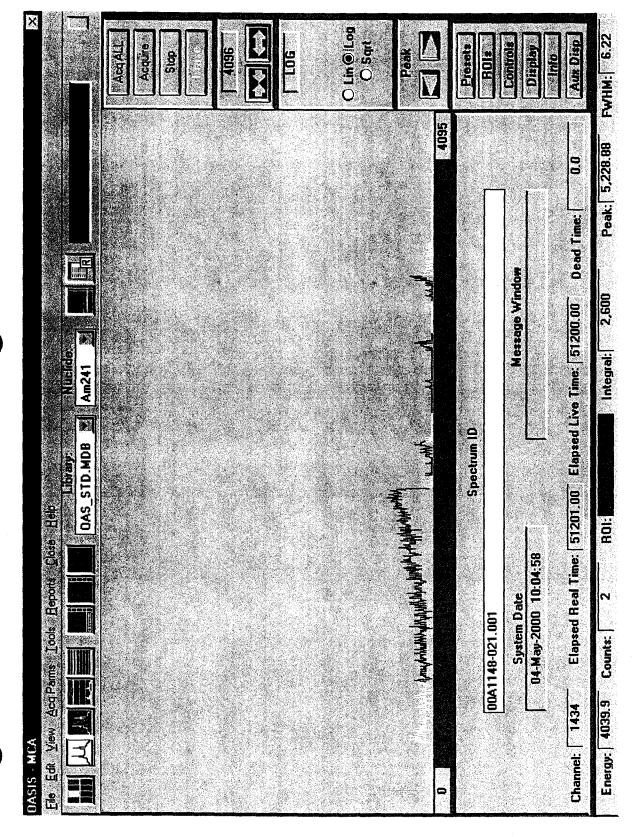
ROI ID	ASSOC NUC	EMM. PROB	ACTIVITY	MDA
			(dpm/samp)	(dpm)
Po218	Po218	1.000	0.184 ± 0.028	3.93E-02
Po214	Po214	1.000	0.119 ± 0.022	3.08E-02
Po212	Po212	1.000	0.182 ± 0.029	5.12E-02
Po210	Po210	1.000	9.888 ± 0.237	1.20E-01

Activity reported as of May 03/ 2000 16:40:24

ANALYSIS REVIEWED BY:

APPROVED BY:

Aike actury:



Oasis Device # 2

RFETS; Golden, CO Apr 24, 2000 13:12:23

Sample ID: 00A1148-022.001 Type: Unknown

Batch ID: unknown

Acquisition Start: April 24, 2000 09:31:55 Analysis Date: April 24, 2000 13:12:16 Procedure: polonium210 samples

Device: Oasis:02:02
Analysis Method: ROI Analysis
Spectrum File: 00000302 0XS

Spectrum File: 00000302.0XS LiveTime: 10,800.00

Calibrations:

Energy = 1.436E+01 + 2.491E+00 * Chn Coeff. of Correlation: -0.998

Calibration Date: April 04, 2000 15:25:18 Std: 2:2 energy calibration

Shape not Calibrated.

Efficiency = $3.436E-01 \pm 4.641E-03$

Calibration Date: April 05, 2000 09:05:57 Std: AS 4188

External Recovery No Ext.Recovery

Original Sample Amount:

ROI DATA

ROI	ID	ASSOCIATED	EXTE	NTS	PK EN	FWHM
#		NUCLIDE	START	END	(keV)	(keV)
1	Po218	Po218	5552.6	6077.8	5814.5	1.2
2	Po214	Po214	7420.0	7770.1	7593.4	1.2
3	Po212		8521.5	8850.6	8687.1	1.2
4	Po210	Po210	2263.7	5402.1	3831.3	2.5

ROI ANALYSIS RESULTS

ROI ID	NET COUNTS	BKG/INTERF	CPM	ROI TYPE
Po218	-1.5 ± 0.6	1.50	$-8.33E-03 \pm 3.40E-03$	Unknown
Po214	-0.8 ± 0.4	0.75	$-4.17E-03 \pm 2.41E-03$	Unknown
Po212	0.0 ± 0.0	0.00	$0.00E+00 \pm 0.00E+00$	Unknown
Po210	8.0 ± 4.8	12.00	0.044 ± 0.027	Unknown

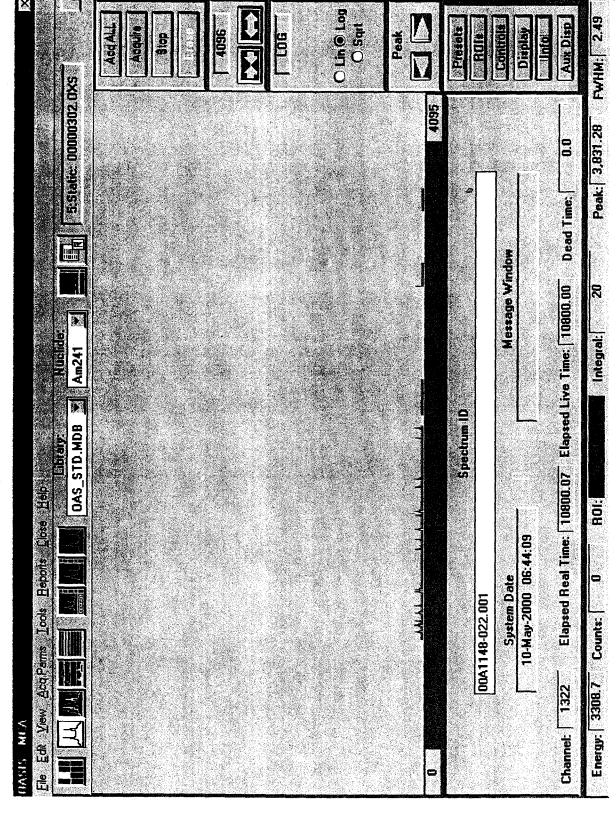
NUCLIDE ANALYSIS RESULTS

ROI ID	ASSOC NUC	EMM. PROB	ACTIVITY	MDA
			(dpm/samp)	(dpm)
Po218	Po218	1.000	$-2.43E-02 \pm 9.91E-03$	1.17E-01
Po214	Po214	1.000	$-1.21E-02 \pm 7.00E-03$	9.53E-02
Po212		1.000	$0.00E+00 \pm 0.00E+00$	4.38E-02
Po210	Po210	1.000	0.129 ± 0.078	2.50E-01

Activity reported as of April 24, 2000 09:31:55

ANALYSIS REVIEWED BY:

APPROVED BY:



Oasis Device # 2

RFETS; Golden, CO Apr 24, 2000 13:12:07

Sample ID:

00A1148-023.001

Type:

Unknown

Batch ID:

unknown

Acquisition Start:

April 24, 2000 09:31:57 April 24, 2000 13:11:59

Analysis Date: Procedure:

polonium210 samples

Device:

Oasis:02:03

Analysis Method:

ROI Analysis

Spectrum File:

00000303.oxs

LiveTime: 10,800.00

Calibrations:

Energy = 1.604E+02 + 2.389E+00 * Chn Coeff. of Correlation: -0.998

Calibration Date: April 04, 2000 15:34:53

Std: 2:3 energy cal

Shape not Calibrated.

Efficiency = $3.357E-01 \pm 4.547E-03$ Calibration Date: April 05, 2000 09:20:34

Std: AS 4188

External Recovery

No Ext.Recovery

Original Sample Amount:

 1.000 ± 0.000 samp

Aliquot Amount:

 1.000 ± 0.000 samp

ROI DATA

ROI	ID	ASSOCIATED	EXTENTS		PK EN	FWHM
#		NUCLIDE	START	END	(keV)	(keV)
1	Po218	Po218	5552.6	6077.8	5815.3	2.4
2	Po214	Po214	7420.0	7770.1	7595.1	2.4
3	Po212		8521.5	8850.6	8686.9	1.2
4	Po210	Po210	2263.7	5402.1	3832.4	2.4

ROI ANALYSIS RESULTS

ROI ID	NET COUNTS	BKG/INTERF	CPM	ROI TYPE
Po218	1.2 ± 1.4	0.83	$6.50E-03 \pm 7.97E-03$	Unknown
Po214	0.9 ± 1.0	0.14	$4.79E-03 \pm 5.58E-03$	Unknown
Po212	-0.3 ± 0.1	0.28	$-1.54E-03 \pm 7.69E-04$	Unknown
Po210	57.8 ± 8.5	14.18	0.321 ± 0.047	Unknown

NUCLIDE ANALYSIS RESULTS

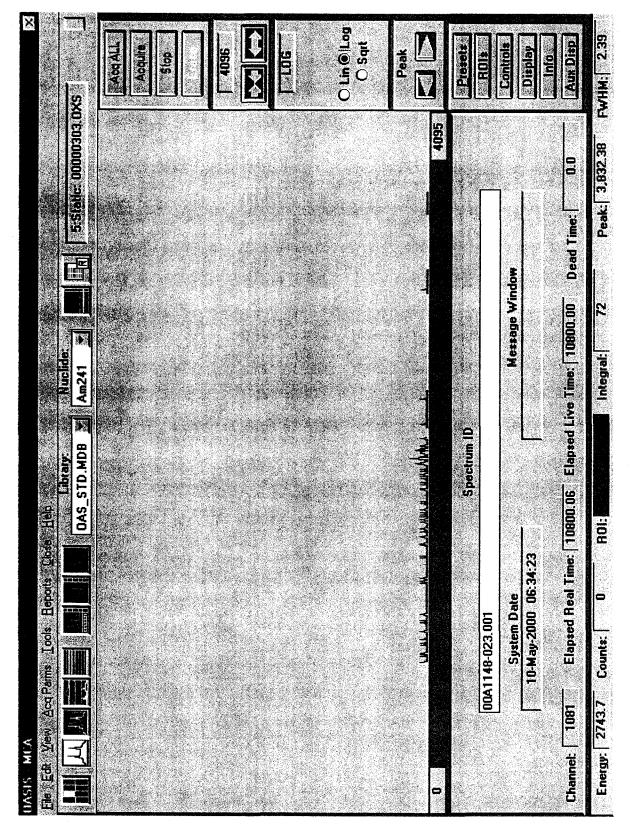
ROI ID	ASSOC NUC	EMM. PROB	ACTIVITY	MDA
			(dpm/samp)	(dpm)
Po218	Po218	1.000	0.019 ± 0.024	9.61E-02
Po214	Po214	1.000	0.014 ± 0.017	6.57E-02
Po212		1.000	$-4.58E-03 \pm 2.29E-03$	7.44E-02
Po210	Po210	1.000	0.957 ± 0.142	2.57E-01

2000/09:

Activity reported as of Apri

ANALYSIS REVIEWED BY:

APPROVED BY:



Sample ID: 00A1148-024.001 Unknown Type:

Batch ID:

unknowns

Acquisition Start:

May 03, 2000 08:48:51 May 03, 2000 16:49:15

Analysis Date: Procedure:

Po210 count Oasis:01:03

Device: Analysis Method:

ROI Analysis

Spectrum File:

00000528.OXS LiveTime: 28,800.00

Calibrations:

Energy = 6.596E+01 + 2.779E+00 * ChnCoeff. of Correlation: -0.998

Calibration Date: April 24, 2000 13:03:27

Std: 1:3 Energy Cal

Shape not Calibrated.

Efficiency = $3.120E-01 \pm 4.098E-03$

Calibration Date: April 24, 2000 10:05:48

Std: TS4189

External Recovery

No Ext.Recovery

Air Filter Analysis Parameters:

Sample Type:

Unknown

Air Filter Time on:

May 03, 2000 08:47:18 Air Filter Time off: May 03, 2000 08:47:18

Total Collect Time:

0.000 hours

Air Volume:

 1.000 ± 0.000 samp

ROI DATA

i						
ROI	ID	ASSOCIATED	EXI	ENTS	PK EN	FWHM
#		NUCLIDE	START	END	(keV)	(keV)
1	Po218	Po218	5550.0	6104.5	5827.5	4.2
2	Po214	Po214	6588.5	7874.7	7231.0	2.8
3	Po212	Po212	8393.8	8808.6	8745.7	3.2
4	Po210	Po210	2180.3	5343.3	5163.2	3.1

ROI ANALYSIS RESULTS

ROI ID	NET COUNTS	BKG/INTERF	CPM	ROI TYPE
Po218	12.7 ± 3.9	1.33	$0.026 \pm 8.04E-03$	Unknown
Po214	0.3 ± 2.2	2.67	$6.94E-04 \pm 4.55E-03$	Unknown
Po212	18.0 ± 4.2	0.00	$0.038 \pm 8.84E-03$	Unknown
Po210	489.0 ± 22.8	18.00	1.019 ± 0.047	Unknown

NUCLIDE ANALYSIS RESULTS

ROI ID	ASSOC NUC	EMM. PROB	ACTIVITY	MDA
			(dpm/samp)	(dpm/samp)
Po218	Po218	1.000	0.085 ± 0.026	5.08E-02
Po214	Po214	1.000	$2.23E-03 \pm 0.015$	6.44E-02
Po212	Po212	1.000	0.120 ± 0.028	1.81E-02
Po210	Po210	1.000	3.265 ± 0.158	1.38E-01

Activity reported as of May 03, 2000 08:48:51

ANALYSIS REVIEWED BY:

APPROVED BY:

O Lin ®iLog FWHM: 3.13 Acquire 960+ Aux Disp O Sqrt AcqALL Presets Controls Stop Peak Display ROIs Pulc Peak: 5,163.20 0.0 Dead Time: Message Window Elapsed Real Time: 28800.72 Elapsed Live Time: 28800.00 507 Nuclide: Integral: Am241 OAS_STD.MDB 🕶 Spectrum 1D Libracy: File Edit View Acq Parms I ools Beports Close Help Whitement he of which white he will be to the fill BOE 03-May-2000 16:52:24 System Date 00A1148-024.001 Counts: Channel: 1687 Energy: 4753.5 DASIS - MCA 0

Oasis Device # 2

RFETS; Golden, CO Apr 24, 2000 13:11:44

Sample ID: 00A1148-025.001 Type: Unknown

Batch ID: unknown

Acquisition Start: April 24, 2000 09:31:58
Analysis Date: April 24, 2000 13:09:01
Procedure: polonium210 samples

Device: Oasis:02:04
Analysis Method: ROI Analysis
Spectrum File: 00000304 OXS

Spectrum File: 00000304.0XS LiveTime: 10,800.00

Calibrations:

Energy = 1.412E+02 + 2.389E+00 * Chn Coeff. of Correlation: -0.998

Calibration Date: April 05, 2000 09:30:14 Std: AS 4188

Shape not Calibrated.

Efficiency = $3.398E-01 \pm 4.596E-03$

Calibration Date: April 05, 2000 09:40:39 Std: AS 4188

External Recovery No Ext.Recovery

Original Sample Amount:

Aliquot Amount: 1.000 ± 0.000 samp 1.000 ± 0.000 samp

ROI DATA

ROI ID ASSOCIATED EXTENTS PK EN **FWHM** NUCLIDE START END (keV) (keV) 1 Po218 Po218 5552.6 1.2 6077.8 5815.3 2 Po214 Po214 7420.0 7770.1 7595.2 2.4 3 Po212 8521.5 8850.6 8684.6 1.2 4 Po210 Po210 2263.7 5402.1 5251.5

ROI ANALYSIS RESULTS

ROI ID NET COUNTS BKG/INTERF CPM ROI TYPE Po218 -0.7 ± 0.2 0.69 $-3.84E-03 \pm 1.22E-03$ Unknown Po214 1.8 ± 1.4 0.21 $9.96E-03 \pm 7.88E-03$ Unknown Po212 -0.2 ± 0.1 $-1.15E-03 \pm 6.66E-04$ Unknown 0.21 Po210 463.7 ± 21.9 2.576 ± 0.121 Unknown 13.35

NUCLIDE ANALYSIS RESULTS

ROI ID ASSOC NUC EMM. PROB ACTIVITY MDA (dpm/samp) (dpm) Po218 Po218 1.000 9.05E-02 $-1.13E-02 \pm 3.58E-03$ Po214 1.000 Po214 0.029 ± 0.023 6.96E-02 Po212 1.000 $-3.39E-03 \pm 1.96E-03$ 6.96E-02 Po210 Po210 1.000 7.580 ± 0.372 2.47E-01

Activity reported as of April 24 2000 09:31:58

ANALYSIS REVIEWED BY:

APPROVED BY:

O Lin @ Log FWHM; 9.08 Aux Disp 4096 O Sqrt Acquire AcqALL Controls Peak Display Stop 5:5!atic: 00000304.0XS Peak: 5,251.48 Elapsed Real Time: 10800.10 Elapsed Live Time: 10800.00 Dead Time: Message Window Integral: 477 Am241 Spectrum ID DAS_STD.MDB 🕶 TANDARA ALAM A A MARKANA ARA MAKAMANINA Elle Edit Yew Acq Parms Iools Reports, Close Help System Date 10-May-2000 06:47:47 00A1148-025.001 Counts: Channel: 7205 Energy: 3019.4 DASIS - MCA

Sample ID: 00A1148-026.001

Batch ID: unknowns

Acquisition Start: April 26, 2000 06:50:47 Analysis Date: April 26, 2000 09:51:07

Procedure: Po210 count
Device: Oasis:01:03
Analysis Method: ROI Analysis

Spectrum File: 00000494.0XS LiveTime: 10,800.00

Type:

Unknown

Calibrations:

Energy = 6.596E+01 +2.779E+00 * Chn Coeff. of Correlation: -0.998 Calibration Date: April 24, 2000 13:03:27 Std: 1:3 Energy Cal

Shape not Calibrated.

Efficiency = $3.120E-01 \pm 4.098E-03$

Calibration Date: April 24, 2000 10:05:48 Std: TS4189

External Recovery No Ext.Recovery

Original Sample Amount:

 1.000 ± 0.000 samp

Aliquot Amount: 1.000 ± 0.000 samp

ROI DATA

ROI ID ASSOCIATED EXTENTS PK EN **FWHM** NUCLIDE START (keV) END (keV) 1 Po218 Po218 5550.0 5827.5 2.8 6104.5 2 Po214 Po214 6588.5 7231.0 7874.7 1.4 3 Po212 Po212 8393.8 8601.2 8808.6 1.4 4 Po210 Po210 2180.3 5343.3 5135.4 6.0

ROI ANALYSIS RESULTS

ROI ID NET COUNTS BKG/INTERF CPM ROI TYPE Po218 0.7 ± 1.0 0.26 $4.13E-03 \pm 5.74E-03$ Unknown Po214 -0.3 ± 0.3 0.26 $-1.42E-03 \pm 1.42E-03$ Unknown Po212 -0.5 ± 0.4 0.51 $-2.85E-03 \pm 2.01E-03$ Unknown Po210 567.8 ± 24.0 7.17 3.155 ± 0.133 Unknown

NUCLIDE ANALYSIS RESULTS

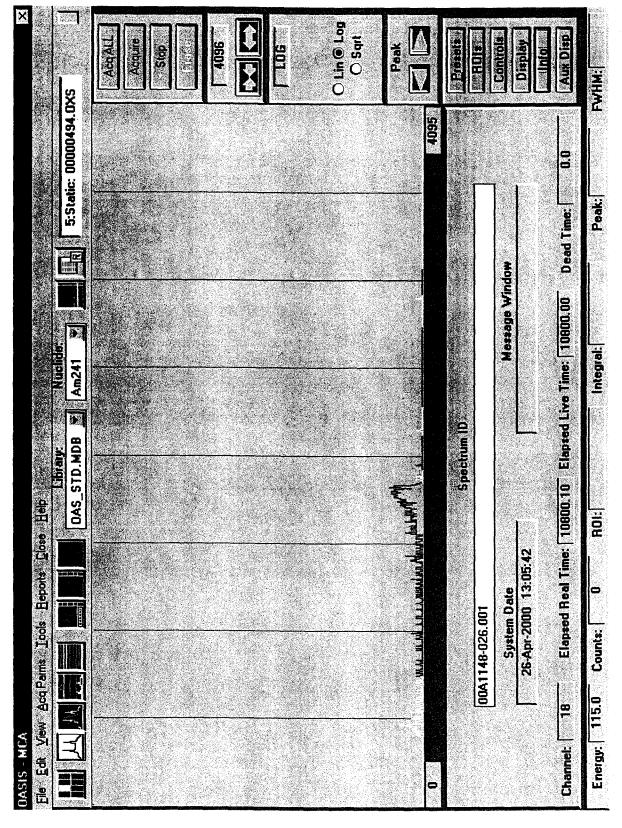
ACTIVITY ROI ID ASSOC NUC EMM. PROB MDA (dpm/samp) (dpm) Po218 Po218 1.000 8.14E-02 0.013 ± 0.018 Po214 Po214 1.000 $-4.56E-03 \pm 4.56E-03$ 8.14E-02 Po212 Po212 1.000 $-9.13E-03 \pm 6.45E-03$ 9.52E-02 Po210 Po210 1.000 2.24E-01 10.111 ± 0.448

Activity reported as of Apr/1 /26, 20%) 6:50:47

ANALYSIS REVIEWED BY:

APPROVED BY:

"Page 1



Sample ID: 00A1148-027.001 Type: Unknown

Batch ID:

unknowns

Acquisition Start: Analysis Date:

April 26, 2000 06:48:31 April 26, 2000 09:48:49

Procedure: Device:

Po210 count Oasis:01:02

Analysis Method:

ROI Analysis

Spectrum File: 0

00000493.OXS LiveTime: 10,800.00

Calibrations:

Energy = 5.823E+01 +2.790E+00 * Chn Coeff. of Correlation: -0.998 Calibration Date: April 07, 2000 14:55:56 Std: 1:2 energy cal

Shape not Calibrated.

Efficiency = $3.089E-01 \pm 4.062E-03$

Calibration Date: April 07, 2000 15:15:30

Std: TS4189

External Recovery No

No Ext.Recovery

Original Sample Amount:

 1.000 ± 0.000 samp

Aliquot Amount:

 1.000 ± 0.000 samp

ROI DATA

ROI	TD	ASSOCIATED	FVT	FNTS	PK EN	FWHM
1(01	110				2.2.2.2.7	
#		NUCLIDE	START	END	(keV)	(keV)
1	Po218	Po218	5550.0	6104.5	5826.0	2.8
2	Po214	Po214	6588.5	7874.7	7229.6	2.8
3	Po212	Po212	8393.8	8808.6	8599.7	2.8
4	Po210	Po210	2180.3	5343.3	5100.5	4.6

ROI ANALYSIS RESULTS

ROI ID	NET COUNTS	BKG/INTERF	CPM	ROI TYPE
Po218	2.0 ± 1.4	0.00	$0.011 \pm 7.86E-03$	Unknown
Po214	0.7 ± 1.0	0.26	$4.13E-03 \pm 5.74E-03$	Unknown
Po212	3.0 ± 1.7	0.00	$0.017 \pm 9.62E-03$	Unknown
Po210	578.4 ± 24.2	4.62	3.213 ± 0.134	Unknown

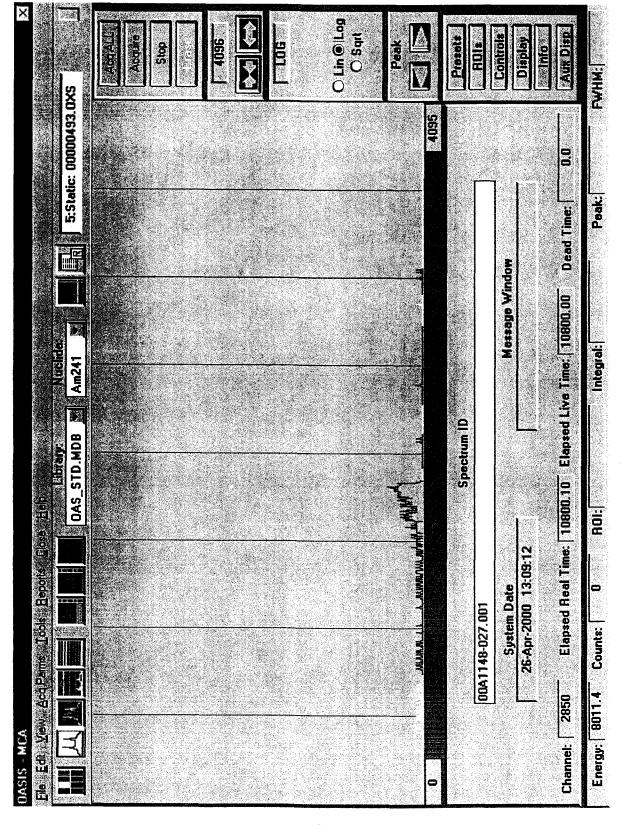
NUCLIDE ANALYSIS RESULTS

ROI ID	ASSOC NUC	EMM. PROB	ACTIVITY	MDA
			(dpm/samp)	(dpm)
Po218	Po218	1.000	0.036 ± 0.025	4.87E-02
Po214	Po214	1.000	0.013 ± 0.019	8.23E-02
Po212	Po212	1.000	0.054 ± 0.031	4.87E-02
Po210	Po210	1.000	10.401 ± 0.456	1.91E-01

Activity reported as of April/26, 2000 06:48:31

ANALYSIS REVIEWED BY:

APPROVED BY:



051000.028.0915

Type:

Unknown

Batch ID:

unknowns

Acquisition Start: Analysis Date:

May 10, 2000 09:15:36 May 10, 2000 13:43:17

Procedure:

RFETS unknown

Device:

Oasis:01:01

Analysis Method:

ROI Analysis

Spectrum File:

00000558.OXS

LiveTime: 10,800.00

Calibrations:

Energy = 3.865E+01 + 2.790E+00 * Chn Coeff. of Correlation: -0.998

Calibration Date: April 03, 2000 17:45:10

Std: 1:1 energy cal

Shape not Calibrated.

Efficiency = $3.041E-01 \pm 4.004E-03$

Calibration Date: April 07, 2000 09:49:29

Std: TS4189

External Recovery

No Ext.Recovery

Original Sample Amount:

 1.000 ± 0.000 samp

Aliquot Amount:

 1.000 ± 0.000

ROI DATA

ROI	ID	ASSOCIATED	EXTE	INTS	PK EN	FWHM
#		NUCLIDE	START	END	(keV)	(keV)
1	Pu239	Po210	2437.5	5342.1	5293.1	2.8
2	Po218	Po218	5550.0	6104.5	5826.0	1.4
3	Po214	Po214	6588.5	7874.7	7229.6	2.8
4	Po212	Po212	8393.8	8808.6	8599.7	1 - 4

ROI ANALYSIS RESULTS

ROI ID	NET COUNTS	BKG/INTERF	СРМ	ROI TYPE
Pu239	33.8 ± 6.3	5.25	0.188 ± 0.035	Unknown
Po218	-0.8 ± 0.4	0.75	$-4.17E-03 \pm 2.41E-03$	Unknown
Po214	0.5 ± 1.1	0.50	$2.78E-03 \pm 5.89E-03$	Unknown
Po212	0.0 ± 0.0	0.00	$0.00E+00 \pm 0.00E+00$	Unknown

NUCLIDE ANALYSIS RESULTS

ROI ID	ASSOC NUC	EMM. PROB	ACTIVITY	MDA
			(dpm/samp)	(dpm)
Pu239	(Po210)	1.000	0.617 ± 0.116	2.03E-01
Po218	Po218	1.000	$-1.37E-02 \pm 7.91E-03$	1.08E-01
Po214	Po214	1.000	$9.14E-03 \pm 0.019$	9.70E-02
Po212	Po212	1.000	$0.00E+00 \pm 0.00E+00$	4.94E-02

Activity reported as of May 10, 2000 09:15:36

APPROVED BY:

O Lin ® Log FWHM: 2.79 Aux Disp Controls Acquire 4096 Acq ALL Presets Peak Display Stop 4095 Peak: 5,293.06 Elapsed Real Time: 10801.00 Elapsed Live Time; 10800.00 Dead Time; 0.0 Message Window Integral: Am241 OAS_STD.MDB 💌 Spectrum ID Ele Edit View Acq Parms Iools Beports Glose Help ROI: 10-May-2000 13:38:10 System Date 051000.028.0915 Counts: Channel: 999 Energy: 2826.4 DASIS - MCA

00A1148-029.001

April 26, 2000 15:40:12

April 27, 2000 06:47:16

Type:

Unknown

Batch ID:

Acquisition Start:

Analysis Date:

Device:

Spectrum File:

Procedure: Analysis Method:

Po210 count Oasis:01:03 ROI Analysis

unknowns

00000509.OXS

LiveTime: 28,800.00

Calibrations:

Energy = 6.596E+01 +2.779E+00 * Chn Coeff. of Correlation: -0.998Calibration Date: April 24, 2000 13:03:27 Std: 1:3 Energy Cal

Shape not Calibrated.

Efficiency = $3.120E-01 \pm 4.098E-03$

Calibration Date: April 24, 2000 10:05:48

Std: TS4189

External Recovery

No Ext.Recovery

Original Sample Amount:

Aliquot Amount:

 1.000 ± 0.000 samp 1.000 ± 0.000 samp

ROI DATA

ROI	ID	ASSOCIATED	EXT	ENTS	PK EN	FWHM
#		NUCLIDE	START	END	(keV)	(keV)
1	Po218	Po218	5550.0	6104.5	5827.5	2.8
2	Po214	Po214	6588.5	7874.7	7231.0	2.8
3	Po212	Po212	8393.8	8808.6	8601.2	1.4
4	Po210	Po210	2180.3	5343.3	5282.7	21 7

ROI ANALYSIS RESULTS

ROI ID Po218 Po214 Po212	NET COUNTS 1.3 ± 1.6 1.3 ± 1.6 -1.4 + 1.0	BKG/INTERF 0.68 0.68	2.74E-03 ± 3.27E-03 2.74E-03 ± 3.27E-03	Unknown
	-1.4 ± 1.0	1.37	$-2.85E-03 \pm 2.01E-03$	Unknown
Po210	429.9 ± 21.5	19.13	0.896 ± 0.045	Unknown

NUCLIDE ANALYSIS RESULTS

ROI ID	ASSOC NUC	EMM. PROB	ACTIVITY	MDA
- 040			(dpm/samp)	(dpm)
Po218	Po218	1.000	$8.79E-03 \pm 0.010$	4.16E-02
Po214	Po214	1.000	8.79E-03 + 0.010	4.16E-02
Po212	Po212	1,000	$-9.13E-03 \pm 6.45E-03$	
Po210	-			5.14E-02
10210	Po210	1.000	2.870 ± 0.148	1.43E-01

Activity reported as of April, 26,

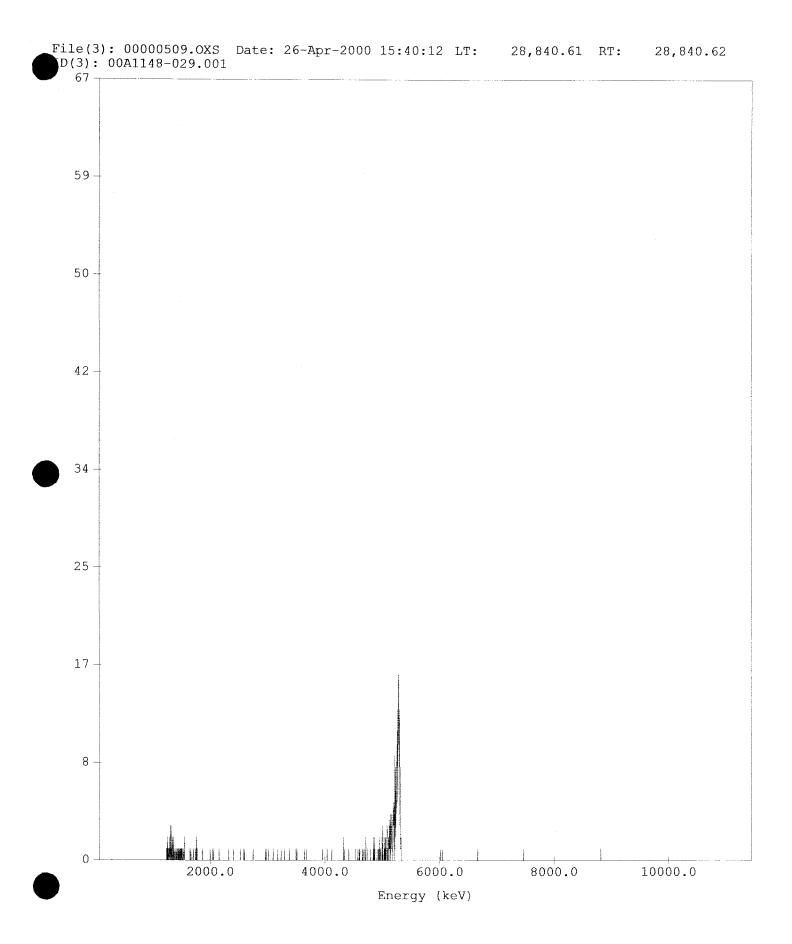
ANALYSIS REVIEWED BY

APPROVED BY:

Stepher Str

Page 1

8-56



00A1148-030.001

Type:

Unknown

LiveTime: 28,800.00

Batch ID:

unknowns

Acquisition Start:

April 26, 2000 14:27:25

Analysis Date:

April 27, 2000 06:47:13

Procedure:

Po210 count Oasis:01:01

Device: Analysis Method:

ROI Analysis

Spectrum File:

00000508.oxs

Calibrations:

Energy = 3.865E+01 +2.790E+00 * Chn Coeff. of Correlation: -0.998

Calibration Date: April 03, 2000 17:45:10

Std: 1:1 energy cal

Shape not Calibrated.

Efficiency = $3.041E-01 \pm 4.004E-03$

Calibration Date: April 07, 2000 09:49:29

Std: TS4189

External Recovery

No Ext.Recovery

Original Sample Amount:

 1.000 ± 0.000 samp

Aliquot Amount:

 1.000 ± 0.000 samp

ROI DATA

ROI	ID	ASSOCIATED	EXTE	NTS	PK EN	FWHM
#		NUCLIDE	START	END	(keV)	(keV)
1	Po218	Po218	5550.0	6104.5	5826.0	2.8
2	Po214	Po214	6588.5	7874.7	7229.6	2.8
. 3	Po212	Po212	8393.8	8808.6	8599.7	2.8
4	Po210	Po210	2180.3	5343.3	5304.2	9.5

ROI ANALYSIS RESULTS

ROI ID	NET COUNTS	BKG/INTERF	CPM	ROI TYPE
Po218	3.3 ± 2.1	0.69	$6.90E-03 \pm 4.40E-03$	Unknown
Po214	0.6 ± 1.7	1.37	$1.31E-03 \pm 3.57E-03$	Unknown
Po212	1.0 ± 1.0	0.00	$2.08E-03 \pm 2.08E-03$	Unknown
Po210	449.2 ± 21.9	17.83	0.936 ± 0.046	Unknown

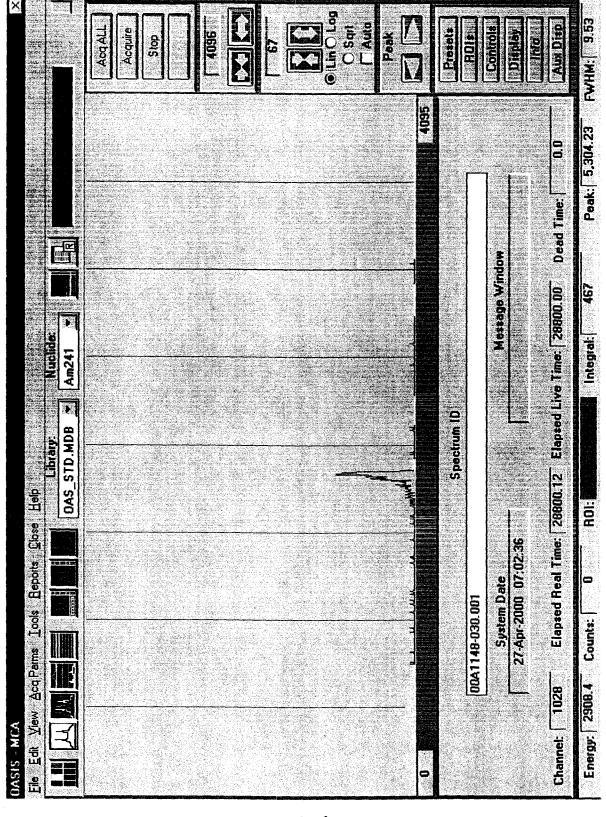
NUCLIDE ANALYSIS RESULTS

ROI ID	ASSOC NUC	EMM. PROB	ACTIVITY	MDA
			(dpm/samp)	(dpm)
Po218	Po218	1.000	0.023 ± 0.014	4.28E-02
Po214	Po214	1.000	$4.31E-03 \pm 0.012$	5.28E-02
Po212	Po212	1.000	$6.85E-03 \pm 6.85E-03$	1.85E-02
Po210	Po210	1.000	3.078 ± 0.155	1.42E-01

Activity reported as of April

ANALYSIS REVIEWED BY:

APPROVED BY:



051000.031.0920

Type:

Unknown

Batch ID:

unknowns

Acquisition Start:

May 10, 2000 09:17:44

Analysis Date:

May 10, 2000 13:48:31

Procedure:

RFETS unknown

Device:

Oasis:01:02

Analysis Method:

ROI Analysis

Spectrum File:

00000559.OXS

LiveTime: 10,800.00

Calibrations:

Energy = 5.823E+01 + 2.790E+00 * Chn Coeff. of Correlation: -0.998

Calibration Date: April 07, 2000 14:55:56

Std: 1:2 energy cal

Shape not Calibrated.

Efficiency = $3.089E-01 \pm 4.062E-03$

Calibration Date: April 07, 2000 15:15:30

Std: TS4189

External Recovery

No Ext.Recovery

Original Sample Amount:

 1.000 ± 0.000 samp

Aliquot Amount:

 1.000 ± 0.000 samp

ROI DATA

ROI	ID	ASSOCIATED	EXTE	NTS	PK EN	FWHM
#		NUCLIDE	START	END	(keV)	(keV)
1	Pu239	Po210	2437.5	5311.4	4534.1	6.5
2	Po218	Po218	5550.0	6104.5	5826.0	1.4
3	Po214	Po214	6588.5	7874.7	7229.6	2.8
4	Po212	Po212	8393.8	8808.6	8599.7	1.4

ROI ANALYSIS RESULTS

ROI ID	. NET COUNTS	BKG/INTERF	CPM	ROI TYPE
Pu239	574.5 ± 24.1	6.50	3.192 ± 0.134	Unknown
Po218	0.0 ± 0.0	0.00	$0.00E+00 \pm 0.00E+00$	Unknown
Po214	1.8 ± 1.4	0.25	$9.72E-03 \pm 7.98E-03$	Unknown
Po212	-0.3 ± 0.3	0.25	$-1.39E-03 \pm 1.39E-03$	Unknown

NUCLIDE ANALYSIS RESULTS

ROI ID	ASSOC NUC	EMM. PROB	ACTIVITY	MDA
			(dpm/samp)	(dpm)
Pu239	(Po210)	1.000	10.331 ± 0.455	2.17E-01
Po218	Po218	1.000	$0.00E+00 \pm 0.00E+00$	4.87E-02
Po214	Po214	1.000	0.031 ± 0.026	8.17E-02
Po212	Po212	1.000	$-4.50E-03 \pm 4.50E-03$	8.17E-02

Activity reported as of May 10, 2000 09:17:44

ANALYSIS REVIEWED BY:

5/10/00

APPROVED BY:

FWHM: 2.78 O Lin ® Log O Squt Peak Acquire 4096 507 Stop 4095 Peak: 7,229.62 Edit # ID ID Energy Delta Clear 0.0 Erase Nuclide: Integral: Am241 Save AUIs Associated Nuclide ROI Editor OAS_STD.MDB -Set Clear Po218 Library: Clear ALL ROIs Se anistration and an individual of the second of the seco Elle Edit Yiew Acq Parms Iools Beports Close Help BOI: X Show Marker Counts: 🗷 Set ROIs ROI Type Unknown Energy: 7076.7 End 6104.52 Start 5550.01 DASIS - MCA keV/Ch 2.79

00A1148-032.001

Type:

Unknown

Batch ID:

unknowns

Acquisition Start:

April 26, 2000 06:59:10 April 26, 2000 09:59:26

Analysis Date:

Procedure:

Po210 count

Device:

Oasis:01:04

Analysis Method:

ROI Analysis

Spectrum File:

00000495.OXS

LiveTime: 10,800.00

Calibrations:

Energy = 8.600E+01 + 2.746E+00 * Chn Coeff. of Correlation: -0.998

Calibration Date: April 12, 2000 10:28:56

Std: 1:4 energy cal

Shape not Calibrated.

Efficiency = $3.084E-01 \pm 4.055E-03$

Calibration Date: April 12, 2000 11:45:10

Std: TS4189

External Recovery

No Ext.Recovery

Original Sample Amount:

 1.000 ± 0.000 samp

Aliquot Amount:

 1.000 ± 0.000 samp

ROI DATA

ROI	ID	ASSOCIATED	EXTE	NTS	PK EN	FWHM
#		NUCLIDE	START	END	(keV)	(keV)
1	Po218	Po218	5550.0	6104.5	5826.2	1.4
2	Po214	Po214	6588.5	7874.7	7232.4	2.7
3	Po212	Po212	8393.8	8808.6	8600.1	2.7
4	Po210	Po210	2180.3	5343.3	4661.7	3.4

ROI ANALYSIS RESULTS

ROI ID	NET COUNTS	BKG/INTERF	CPM	ROI TYPE
Po218	-0.8 ± 0.4	0.76	$-4.25E-03 \pm 2.45E-03$	Unknown
Po214	0.7 ± 1.0	0.25	$4.14E-03 \pm 5.73E-03$	Unknown
Po212	0.5 ± 1.1	0.51	$2.73E-03 \pm 5.91E-03$	Unknown
Po210	183.7 ± 13.8	4.33	1.020 ± 0.076	Unknown

NUCLIDE ANALYSIS RESULTS

ROI ID	ASSOC NUC	EMM. PROB	ACTIVITY	MDA
			(dpm/samp)	(dpm)
Po218	Po218	1.000	$-1.38E-02 \pm 7.95E-03$	1.07E-01
Po214	Po214	1.000	0.013 ± 0.019	8.23E-02
Po212	Po212	1.000	$8.84E-03 \pm 0.019$	9.61E-02
Po210	Po210	1.000	3.309 ± 0.252	1.87E-01

Activity reported as of April ,26,

ANALYSIS REVIEWED BY

APPROVED BY:

Peak: 4,661.66 FWHM: 3.43 O Lin ® Log O Sqrt 960+ Peak 5:Static: 00000495.0XS Channel: 1140 Elapsed Real Time. 10800.13 Elapsed Live Time: 10800.00 Dead Time: 0.0 Hessage Window Nuclide: Am241 DAS_STD.MDB File Edit View Acq Pams I cols Beports Close Help 🗓 ROIE System Date 26-Apr-2000 10:29:50 1001,0 00A1148-032.001 Energy: 3217.2 Counts: DASIS - MCA

00A1148-033.001 Type:

Batch ID:

unknowns

Acquisition Start:

April 26, 2000 14:11:48

Analysis Date:

April 27, 2000 06:47:15

Procedure: Device:

Po210 count Oasis:01:02

Analysis Method:

ROI Analysis

Spectrum File:

00000506.OXS

Calibrations:

Energy = 5.823E+01 + 2.790E+00 * Chn Coeff. of Correlation: -0.998

Calibration Date: April 07, 2000 14:55:56

Std: 1:2 energy cal

Shape not Calibrated.

Unknown

LiveTime: 28,800.00

Efficiency = $3.089E-01 \pm 4.062E-03$

Calibration Date: April 07, 2000 15:15:30

Std: TS4189

External Recovery

No Ext. Recovery

Original Sample Amount:

 1.000 ± 0.000 samp

Aliquot Amount:

 1.000 ± 0.000 samp

ROI DATA

RC	ΟI	ID	ASSOCIATED	EXT	TENTS	PK EN	FWHM
#	ŧ		NUCLIDE	START	END	(keV)	(keV)
	1	Po218	Po218	5550.0	6104.5	5826.0	2.8
	2	Po214	Po214	6588.5	7874.7	7229.6	2.8
	3	Po212	Po212	8393.8	8808.6	8599.7	2.8
	4	Po210	Po210	2180.3	5343.3	4933.1	3.9

ROI ANALYSIS RESULTS

ROI ID	NET COUNTS	BKG/INTERF	CPM	ROI TYPE
Po218	16.0 ± 4.0	0.00	$0.033 \pm 8.33E-03$	Unknown
Po214	10.3 ± 3.4	0.68	$0.021 \pm 7.06E-03$	Unknown
Po212	12.0 ± 3.5	0.00	$0.025 \pm 7.22E-03$	Unknown
Po210	898.7 ± 30.3	12.31	1.872 ± 0.063	Unknown

NUCLIDE ANALYSIS RESULTS

ROI ID	ASSOC NUC	EMM. PROB	ACTIVITY	MDA
			(dpm/samp)	(dpm)
Po218	Po218	1.000	0.108 ± 0.027	1.82E-02
Po214	Po214	1.000	0.070 ± 0.023	4.21E-02
Po212	Po212	1.000	0.081 ± 0.023	1.82E-02
Po210	Po210	1.000	6.060 ± 0.219	1.19E-01

Activity reported as of Apr

ANALYSIS REVIEWED BY:

APPROVED BY:

Page 1

©!Lin⊜ Log ⊖ Sqrt ∏ Auto PAHA: 4096 Aux Disp Peak Presere Controls 800 INFO ROIS Display 0.0 Dead Time: Spactrum 1D Message Window Elapsed Real Time: 28800.50 Elapsed Live Time: 28800.00 Nuclide: Integral: Am241 OAS STD.MDB Library: File Edit View Acq Pams "Lools Beports "Close Help - HOI: 27-Apr-2000 06:57:31 System Date 00A1148-033.001 Counts: | 488 Energy: 1419.3 DASIS - MCA Channel: 0

00A1148-034.001

Type:

Unknown

Batch ID:

unknowns

Acquisition Start:

April 26, 2000 14:23:29

Analysis Date:

April 27, 2000 06:47:18

Procedure:

Po210 count

Device:

Oasis:01:04

Analysis Method:

ROI Analysis

Spectrum File:

00000507.OXS

LiveTime: 28,800.00

Calibrations:

Energy = 8.600E+01 + 2.746E+00 * Chn

Coeff. of Correlation: -0.998

Calibration Date: April 12, 2000 10:28:56

Std: 1:4 energy cal

Shape not Calibrated.

Efficiency = $3.084E-01 \pm 4.055E-03$

Calibration Date: April 12, 2000 11:45:10

Std: TS4189

External Recovery

No Ext.Recovery

Original Sample Amount:

 1.000 ± 0.000 samp

Aliquot Amount:

 1.000 ± 0.000 samp

ROI DATA

ROI	ID	ASSOCIATED	EXI	CENTS	PK EN	FWHM
#		NUCLIDE	START	END	(keV)	(keV)
1	Po218	Po218	5550.0	6104.5	5826.2	2.7
2	Po214	Po214	6588.5	7874.7	7232.4	1.4
3	Po212	Po212	8393.8	8808.6	8600.1	1.4
4	Po210	Po210	2180.3	5343.3	5246.7	113.3

ROI ANALYSIS RESULTS

ROI ID	NET	COUNTS	BKG/INTERF	CPM	ROI TYPE
Po218	0.0	± 1.8	2.04	$-7.86E-05 \pm 3.83E-03$	Unknown
Po214	-0.7	± 0.7	0.68	$-1.42E-03 \pm 1.42E-03$	Unknown
Po212	-1.4	± 1.0	1.36	$-2.83E-03 \pm 2.00E-03$	Unknown
Po210	1,586.5	± 40.1	11.55	3.305 ± 0.083	Unknown

NUCLIDE ANALYSIS RESULTS

ROI ID	ASSOC NUC	EMM. PROB	ACTIVITY	ADM
			(dpm/samp)	(dpm)
Po218	Po218	1.000	$-2.55E-04 \pm 0.012$	5.94E-02
Po214	Po214	1.000	$-4.59E-03 \pm 4.59E-03$	4.20E-02
Po212	Po212	1.000	$-9.18E-03 \pm 6.49E-03$	5.19E-02
Po210	Po210	1.000	10.718 ± 0.305	1.16E-01

Activity reported as of Apri

2009

ANALYSIS REVIEWED BY:

APPROVED BY:

22.492,239

Page 1

FWHM: 113.29 Aux Disp Acquire Stop AcqALL 4096 Presets Controls Peak Display HOIS Peak: 5,246.66 Dead Time: 0.0 Message Window Integral: 1,598 Elapsed Live Time: 28800.00 Am241 Spectrum ID DAS_STD.MDB Library File Edit View Acq Parms Tooks Beports Elose Help : 1 Elapsed Real Time: 28800.63 ROE 27-4pr-2000 07:16:26 System Date 00A1148-034.001 Counts: Channel: 1857 Energy: 5186.3 DASIS - MCA 0

00A1148-035.001

Type: Unknown

Batch ID:

unknowns

Acquisition Start:

April 26, 2000 10:13:08

Analysis Date:

April 26, 2000 13:22:47

Procedure:

Po210 count

Device:

Oasis:01:03 ROI Analysis

Analysis Method: Spectrum File:

00000492.OXS

LiveTime: 11,351.00

Calibrations:

Energy = 6.596E+01 + 2.779E+00 * Chn Coeff. of Correlation: -0.998

Data: April 24 2000 12:02:07 Ctd. 1.2 Enancy Cal

Calibration Date: April 24, 2000 13:03:27

Std: 1:3 Energy Cal

Shape not Calibrated.

Efficiency = $3.120E-01 \pm 4.098E-03$

Calibration Date: April 24, 2000 10:05:48

Std: TS4189

External Recovery

No Ext.Recovery

Original Sample Amount:

 1.000 ± 0.000 samp

Aliquot Amount:

 1.000 ± 0.000 samp

ROI DATA

ROI	ID	ASSOCIATED	EXTE	NTS	PK EN	FWHM
#		NUCLIDE	START	END	(keV)	(keV)
1	Po218	Po218	5550.0	6104.5	5827.5	2.8
2	Po214	Po214	6588.5	7874.7	7231.0	2.8
3	Po212	Po212	8393.8	8808.6	8601.2	0.3
4	Po210	Po210	2180 3	5343.3	5249.4	67.3

ROI ANALYSIS RESULTS

ROI ID	NET C	OUNTS	BKG/INTERF	C	PM	ROI TYPE
Po218	$2.7 \pm$	1.8	0.27	0.014	± 9.27E-03	Unknown
Po214	$2.7 \pm$	1.8	0.27	0.014	± 9.27E-03	Unknown
Po212	$-0.5 \pm$	0.4	0.54	-2.85E-03	± 2.01E-03	Unknown
Po210	$562.5 \pm$	23.9	7.54	2.973	± 0.126	Unknown

NUCLIDE ANALYSIS RESULTS

ROI ID	ASSOC NUC	EMM. PROB	ACTIVITY	MDA
			(dpm/samp)	(dpm)
Po218	Po218	1.000	0.046 ± 0.030	7.84E-02
Po214	Po214	1.000	0.046 ± 0.030	7.84E-02
Po212	Po212	1.000	$-9.13E-03 \pm 6.45E-03$	9.19E-02
Po210	Po210	1.000	9.529 ± 0.424	2.18E-01

Activity reported as of April 26, 2000 10:13.08

ANALYSIS REVIEWED BY:

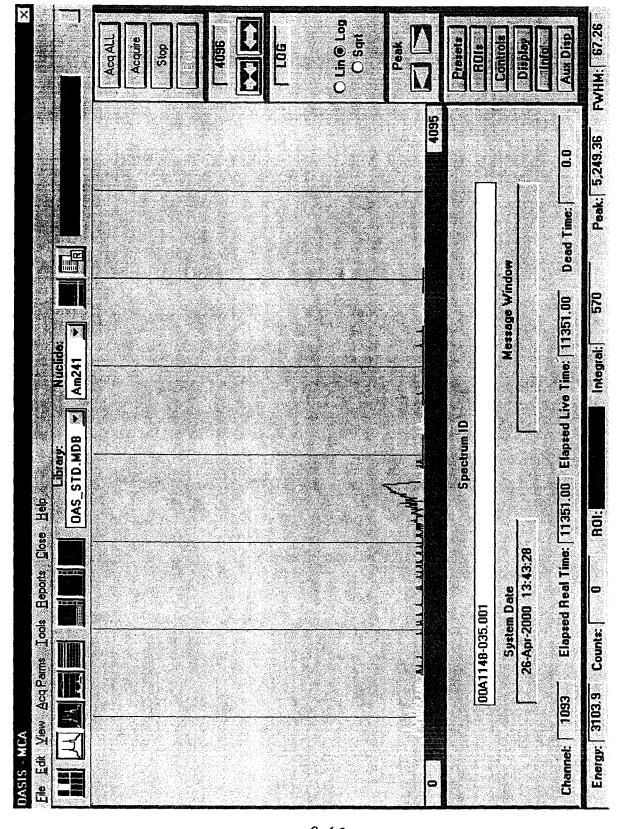
Jan Jane

APPROVED BY:

5/9/00

32. 1339 pr

Page 1



00A1148-036.001

Type:

Unknown

LiveTime: 10,800.00

Batch ID:

unknowns

Acquisition Start:

April 26, 2000 10:13:06 April 26, 2000 13:13:28

Analysis Date:

Procedure:

Po210 count

Device:

Oasis:01:02 ROI Analysis

Analysis Method:

Spectrum File:

00000501.OXS

Calibrations:

Energy = 5.823E+01 + 2.790E+00 * Chn Coeff. of Correlation: -0.998

Calibration Date: April 07, 2000 14:55:56

Std: 1:2 energy cal

Shape not Calibrated.

Efficiency = $3.089E-01 \pm 4.062E-03$

Calibration Date: April 07, 2000 15:15:30

Std: TS4189

External Recovery

No Ext.Recovery

Original Sample Amount:

 1.000 ± 0.000 samp

Aliquot Amount:

 1.000 ± 0.000 samp

ROI DATA

ROI	ID	ASSOCIATED	EXTENTS		PK EN	FWHM
#		NUCLIDE	START	END	(keV)	(keV)
1	Po218	Po218	5550.0	6104.5	5826.0	2.8
2	Po214	Po214	6588.5	7874.7	7229.6	2.8
3	Po212	Po212	8393.8	8808.6	8599.7	2.8
4	Po210	Po210	2180.3	5343.3	5276.3	15.6

ROI ANALYSIS RESULTS

ROI ID	NET COUNTS	BKG/INTERF	CPM	ROI TYPE
Po218	3.0 ± 1.7	0.00	$0.017 \pm 9.62E-03$	Unknown
Po214	0.7 ± 1.0	0.26	$4.13E-03 \pm 5.74E-03$	Unknown
Po212	1.0 ± 1.0	0.00	$5.56E-03 \pm 5.56E-03$	Unknown
Po210	417.4 ± 20.6	4.62	2.319 ± 0.114	Unknown

NUCLIDE ANALYSIS RESULTS

ROI ID	ASSOC NUC	EMM. PROB	ACTIVITY	MDA
			(dpm/samp)	(dpm)
Po218	Po218	1.000	0.054 ± 0.031	4.87E-02
Po214	Po214	1.000	0.013 ± 0.019	8.23E-02
Po212	Po212	1.000	0.018 ± 0.018	4.87E-02
Po210	Po210	1.000	7.506 ± 0.383	1.91E-01

Activity reported as of Apri

ANALYSIS REVIEWED BY: ^

APPROVED BY:

22. 45% gla

O Lin ®|Lag PAHH: O Sqrt Acquire Controls Aux Disp AcqALL 4036 Presets Display Stop Info ROIS Peak: Dead Time: Specifical D Message Window Elapsed Real Time: 10800.09 Elapsed Live Time: 10800.00 Nuclide: Am241 OAS_STD.MDB Ele Edit View Acq Parms Iools Beports Glose Helb 💸 . HOI: 26-Apr-2000 13:38:21 Energy: 10175.9 Counts: 0 **System Date** 00A1148-036.001 3626 DASIS - MCA Channel: 0

00A1148-037.001

Type:

Unknown

Batch ID:

unknowns

Acquisition Start:

April 27, 2000 09:27:34

Analysis Date:

May 01, 2000 06:34:12

Procedure:

Po210 count

Device:

Oasis:01:03

Analysis Method:

ROI Analysis

Spectrum File:

00000511.OXS

LiveTime: 28,800.00

Calibrations:

Energy = 6.596E+01 + 2.779E+00 * Chn Coeff. of Correlation: -0.998

Calibration Date: April 24, 2000 13:03:27

Std: 1:3 Energy Cal

Shape not Calibrated.

Efficiency = $3.120E-01 \pm 4.098E-03$

Calibration Date: April 24, 2000 10:05:48 Std: TS4189

External Recovery

No Ext.Recovery

Original Sample Amount:

 1.000 ± 0.000 samp

Aliquot Amount:

 1.000 ± 0.000 samp

ROI DATA

ROI #	ID
1	Po218
2	Po214

ROI	ID	ASSOCIATED	EXTENTS		PK EN	FWHM
#		NUCLIDE	START	END	(keV)	(keV)
1	Po218	Po218	5550.0	6104.5	5827.5	2.8
2	Po214	Po214	6588.5	7874.7	7231.0	2.8
3	Po212	Po212	8393.8	8808.6	8601.2	4.2
4	Po210	Po210	2180.3	5343.3	5285.5	9.6

ROI ANALYSIS RESULTS

ROI ID Po218	NET COUNTS	BKG/INTERF	CPM 0.015 ± 6.06E-03	ROI TYPE
Po214	6.3 ± 2.7	0.68	0.013 ± 5.69E-03	Unknown
Po212 Po210	7.6 ± 3.2 354.9 ± 19.7	1.37 19.13	$0.016 \pm 6.57E-03$ 0.739 ± 0.041	Unknown Unknown

NUCLIDE ANALYSIS RESULTS

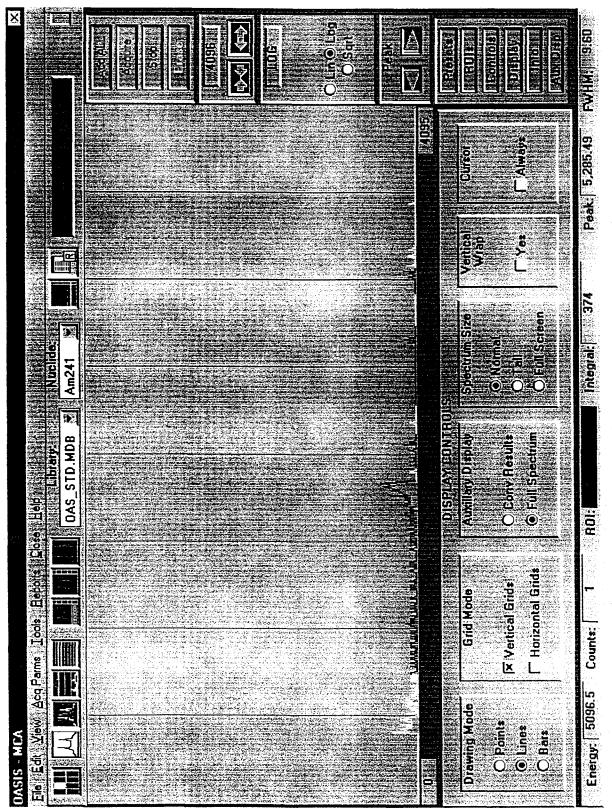
ROI ID	ASSOC NUC	EMM. PROB	ACTIVITY	MDA
			(dpm/samp)	(dpm)
Po218	Po218	1.000	0.049 ± 0.019	4.16E-02
Po214	Po214	1.000	0.042 ± 0.018	4.16E-02
Po212	Po212	1.000	0.051 ± 0.021	5.14E-02
Po210	Po210	1.000	2.370 ± 0.135	1.43E-01

Activity reported as of April 27, 2000 09:27:

ANALYSIS REVIEWED BY:

APPROVED BY:

Page 1



00A1148-037.001

Oasis Device # 2

RFETS; Golden, CO Apr 24, 2000 09:53:44

Sample ID: 00A1148-038.001 Type: Unknown

Batch ID: unknown

Acquisition Start: April 19, 2000 10:33:42
Analysis Date: April 24, 2000 09:53:38
Procedure: polonium210 samples

Device: polonium210
Device: Oasis:02:02

Analysis Method: ROI Analysis
Spectrum File: 00000288.OXS LiveTime: 72,000.00

Calibrations:

Energy = 1.436E+01 + 2.491E+00 * Chn Coeff. of Correlation: -0.998

Calibration Date: April 04, 2000 15:25:18 Std: 2:2 energy calibration

Shape not Calibrated.

Efficiency = $3.436E-01 \pm 4.641E-03$

Calibration Date: April 05, 2000 09:05:57 Std: AS 4188

External Recovery No Ext.Recovery

Original Sample Amount:

ROI DATA

ROI	ID	ASSOCIATED	EXTENTS		PK EN	FWHM
#		NUCLIDE	START	END	(keV)	(keV)
1	Po218	Po218	5552.6	6077.8	5814.5	2.5
2	Po214	Po214	7420.0	7770.1	7593.4	2.5
3	Po212		8521.5	8850.6	8687.1	1.2
4	Po210	Po210	2263.7	5402.1	5273.8	7.9

ROI ANALYSIS RESULTS

ROI ID	NET	COUNTS	BKG/INTERF	CP:	М	ROI TYPE
Po218	6.0	± 5.7	10.00	$5.00E-03 \pm$	4.76E-03	Unknown
Po214	-3.0	± 3.2	5.00	$-2.50E-03 \pm$	2.68E-03	Unknown
Po212	0.0	± 0.0	0.00	0.00E+00 ±	0.00E+00	Unknown
Po210	774.0	± 31.4	80.00	$0.645 \pm$	0.026	Unknown

NUCLIDE ANALYSIS RESULTS

ROI IÒ	ASSOC NUC	EMM. PROB	ACTIVITY	MDA
			(dpm/samp)	(dpm)
Po218	Po218	1.000	0.015 ± 0.014	4.78E-02
Po214	Po214	1.000	$-7.28E-03 \pm 7.80E-03$	3.57E-02
Po212		1.000	$0.00E+00 \pm 0.00E+00$	6.56E-03
Po210	Po210	1.000	1.877 ± 0.080	1.23E-01

Activity reported as of April 10, 2000 10:33:42

ANALYSIS REVIEWED BY:

APPROVED BY:

Page 1

Peak: 5,273.83 FWHM: 7.92 O Lin ® Log O Sqrt Acquire Aux Disp AcqALL Presets Stop 4096 Peak Display ROIs 5:Static: 00000288.0X5 0.0 Elapsed Real Time: 72000.08 Elapsed Live Time: 72000.00 Dead Time: Message Window Integral: 854 Nuclide: Am241 OAS_STD.MDB Spectrum ID Library: Eile Edit Yiew Acq Parms Iools Beports Close Help where commence is a superconstruction of the s ROI: 10-May-2000 06:59:33 System Date 00A1148-038.001 Counts: Channel: 1692 Energy: | 4231.1 OÁSIS - MCA

Oasis Device # 2

RFETS; Golden, CO Apr 20, 2000 07:01:56

Sample ID:

00A1148-039.001

Type:

Unknown

Batch ID:

unknown

Acquisition Start: Analysis Date:

April 19, 2000 10:33:43 April 20, 2000 06:56:35

Procedure:

polonium210 samples

Device:

Oasis:02:03

Analysis Method:

ROI Analysis

Spectrum File:

00000287.OXS

LiveTime: 72,000.00

Calibrations:

Energy = 1.604E+02 + 2.389E+00 * Chn Coeff. of Correlation: -0.998

Calibration Date: April 04, 2000 15:34:53

Std: 2:3 energy cal

Shape not Calibrated.

Efficiency = $3.357E-01 \pm 4.547E-03$

Calibration Date: April 05, 2000 09:20:34

Std: AS 4188

External Recovery

No Ext.Recovery

Original Sample Amount:

 1.000 ± 0.000 samp

Aliquot Amount:

 1.000 ± 0.000 samp

ROI DATA

ROI	ID	ASSOCIATED	EXTENTS		PK EN	FWHM
#		NUCLIDE	START	END	(keV)	(keV)
1	Po218	Po218	5552.6	6077.8	5815.3	3.6
2	Po214	Po214	7420.0	7770.1	7595.1	2.4
3	Po212		8521.5	8850.6	8686.9	2.4
4	Po210	Po210	2263.7	5402.1	5175.0	4.5

ROI ANALYSIS RESULTS

ROI ID	NET COUNTS	BKG/INTERF	CPM	ROI TYPE
Po218	7.0 ± 4.5	5.00	$5.83E-03 \pm 3.76E-03$	Unknown
Po214	1.7 ± 3.2	3.33	$1.39E-03 \pm 2.71E-03$	Unknown
Po212	0.7 ± 3.1	3.33	$5.56E-04 \pm 2.58E-03$	Unknown
Po210	889.3 ± 32.5	61.67	0.741 ± 0.027	Unknown

NUCLIDE ANALYSIS RESULTS

ROI ID	ASSOC NUC	EMM. PROB	ACTIVITY	MDA
			(dpm/samp)	(dpm)
Po218	Po218	1.000	$^{\circ}$ 0.017 \pm 0.011	3.65E-02
Po214	Po214	1.000	$4.14E-03 \pm 8.06E-03$	3.11E-02
Po212		1.000	$1.65E-03 \pm 7.67E-03$	3.11E-02
Po210	Po210	1.000	2.207 ± 0.086	1.11E-01

Activity reported as of Apri

2000

ANALYSIS REVIEWED BY:

APPROVED BY:

Page 1

O Lin®|Log O Sqrt PWHM: 4.51 4096 907 Peak Presets Stop E:Static: 00000287.0XS 4095 Peak: 5,175.02 0.0 Dead Time: Hessage Window Elapsed Real Time: 72000.04 Elapsed Live Time: 72000.00 Integral: | Am241 OAS_STD.MDB . Spectrum ID File Edit View Acq Parms I cols Beports Close Help **ROI:** System Date 10-May-2000 07:01:17 00A1148-039.001 Counts: Channel: 1087 Energy: 2757.7 DASIS - MCA

Rocky Flats

Sample QC Results Summary 6/16/00

Batch #: 27175 RIN 60A1148

Line Item Code: TR01A187

Matrix: Misc. solld

KHCO ID#	GET ID 8	Analysis	Result pCl/g	Zelgina Eiror pCl/g	MDA pCi/g	RDL CCI/g	ੀਵਿ cer Yleld %
OQA1148-015.002	25798001	Uranlum-233/234	3,48E-02	6.21E-02	1.24E-01	1.00	104.62
		Uranium-235	-7.52E-03	4.30E-02	1,41E-01	1.00	104.52
		Utanlum-238	6.80E-04	4.04E-02	1.24E-01	1.00	104.52
00A1148-019:002	25798002	Uranium-233/234	1.726-02	2.85E-02	5.67E-02	1.00	99,31
•		Uranium-235	-2.69E-03	2.33E-02	6.66E-02	1.00	99.31
		Uranium-238	-9.39E-03	1.93E-02	6.66E-02	1.00	99.31
00A1148-031.002	25798003	Uranium-233/234	1.54E-02	3.96E-02	8.79E-02	1.00	107.82
		Uranium-235	-1.06E-02	1.46E-02	7.706-02	1.00	107.82
		Uranium-238	1.04E-02	2.04E-02	2.82E-02	1.00	107.82
00A1148-034.002	25798004	Uranium-233/234	1.18E-01	8.36E-02	9.73E-02	1.00	105.49
		Uranlum-235	-6.60E-03	1.30E-02	7.90E-02	1.00	105.49
		Uranlum-238	6.56E-02	6.58E-02	9.73E-02	1.00	105.49
1000023036	Blank	Uranium-233/234	7,70E-04	2.65E-02	6.85E-02	1.00	104.63
		Uranlum-235	-1.24E-02	1.21E-02	5.92E-02	1.00	104.63
		Uranium-238	2.60E-04	1.53E-02	4.69E-02	1.00	104.63
1000023037	Duplicate	Uranium-233/234	2.02E-02	2.87E-02	4.87E-02	1.00	97.21
	•	Uranium-235	-8.22E-03	1.14E-02	6.00E-02	1.00	97.21
		Uranlum-238	8.04E-03	2.52E-02	6.00E-02		97.21
1000023038	LCS	Uranlum-233/234	3.89E+00	3.20E-01	6.78E-02	1.00	\$9.19
		Uranlum-235	2.12E-01	7.62E-02	4.97E-02	1.00	99.19
•		Uranlum-238	4.19E+00	3.32E-01	5.67E-02		99.19
LCS recovery;							
200100010171	Nom, Conc.	Recovery:					
	. 101111 001101	MOCOVERY,					~34. J

.

Equivalency;

U-238

U-238

U-233/234 U-235 4.829

87%

F/E = 0.09815 F/E = 0.128485 F/E = 0.07338 PRELIMINARY INFORMATION

General Engineering Lobs. Inc.

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:XAH

FILE No. A23 06/16 '00 16:26 ID:

FILE No.272 06/12 '00 16:42 ID:

FAX NO. 303 966 3578

P. 02/04

FAX:

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Racky Flora

Sample QC Results Summary 6/12/00

Baich # : 27173 RIN CPA1146

Line frem Code: TROJA187

Matrix: Miso. solid

KHCO ID #	GULID#	Analysis	Result pCI/g	2dgma linor pCi/g	MDA pCI/g	RDL pCI/g	Tracer Yield
00A1148-016.002	25798001	Americium-241	1,096-01	9,57E-02	5.92E-02	0.30	81.49
00/\1]48-019.002	25798002	Americlum-241	4.20E-02	3.72E-02	4.516-02	0.30	89.13
00A1148-031.002	25796003	Americium-241	0.00E+00	D.00E+00	3,44E-02	0.30	85.19
QQA1146-034.0Q2	25798004	Americium-241	1.45E-02	6.08E-02	1.66E-01	0.30	64.68
10X7060359	Blank	Americium-241	3.64E-02	4.01E-02	6.37E-02	0.30	86.16
1000061138	Dupilcate 00A1148-031.002	Americium-241	0.006+00	0.006+00	4.27E-02	Q8,Q	90.73
1000060361	LCS	Americium-241	4.39E+00	3.71E-01	2.21E-02	0.30	95.55
LCS recovery:							
Arr-241	Nom. Copc. 4,6	Recovery: 98%					
Equivalency: Am-24)	F/E =	0					



General Engineering Labs, Inc.



P. 03/04 .

FAX:

PAGE

Rocky from

Sample QC Results Summary 6/12/00

Baten #: 27174 RIN 92A1148

Line liam Code: TROTATET

Matrix: Miso, solid

KHCO ID #	GEL ID #	Analysis	Result pCI/g	2eigma Enor pCi/d	MDA pCi/g	RDL pCi/g	Tracel Aleiq
00A1146-015.002			3.74E-01	1.68E-01	5.33E-02	0.30	95.36
QQA1148-019.002	25798002	Plutonium-239/240	-9.16E-03	1,79E-02	1.13E-02	0,30	39.51
00/1148-031,002	28798003	Plutonium-239/240	-2.74E-02	3,106-02	1.586-01	0.30	62.53
00/11/48-034/002	2 5798004	Plutonium-239/240	1.62E-02	6.79E-02	1,862-01	0.30	59.66
1000060962	Blank	Plutonium-239/240	0.005+00	0.005+00	2.62E-02	0.30	81.37
1029361141	Duplicate 00A1148-031,002	Plutonium-239/240	0,006+00	0,005+00	6.05E-02	0.30	66.68
1000060364	LCS	Plutonium-239/240	8.04E+00	3.93E-01	2.16E-02	0.90	97.91
LC3 recovery:	None Clade	been man					
Pu-2 39/240	Nom, Conc. 6,7	Recovery: 88%					
Equivalency: Pti-23 9/240	F/E =	: 0. 883		•			

PRELIMINARY INFORMATION

General Engineering Labs, Inc.



JUN-13-2000 TUE 06:42 AM T1300

FILE No.272 08/12 '00 16:42

FAX NO. 303 966 3578

P. 04/04

FAX:

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Recto from

Sample QC Results Summary 6/12/00

Batch # 127172

RIN 20A1148

Mno liem Code: 1801A187

Mahix: Miso. nolld

KIICO ID #	GEL ID #	Analysis	Result pCi/a	žigina Enor pCi/g	MDA pci/g	RDL pCI/g	Tracer Yl <mark>eid</mark> %
00A1148-015,003	26798001	Polonium-210	2.76E+00	8.176-01	1.70E-01	0,30	68.72
00A1148-019.002	25798002	Polonium-210	2,74E+00	5.74E-01	1.56E-01	0.30	46.74
00/411/48-031.002	25798003	Polanium-210	3.80E+00	8.59E-01	2.84E-01	0.30	64.27
00/41148-034.002	25798004	Polonium-210	5,07E+00	1,26E+00	2.22E-01	0.30	57,88
10007140356	Blank	Polonium-210	5.39E-02	8.61E-02	1.632-02	0.30	49.73
1630241844	Duplicate 00A1057-002.001	Polonium-210	2.47E+00	6.60E-01	1.66E-01	0.30	70,11
10090350368	LCS	Polonium-210	1.376-01	1.125+00	1.73E-01	Q&,Q	59.83
LCs recovery:	1	•	•				
Po-010	Nom. Conc. 15.4	Recovery: 89%					
Equivalency: Po-210	F/E o	1,319					

Constol Engineering Lubs, Inv.

PRELIMINARY INFORMATION



Luker, Steve

From: Salmans, Michael

Sent: Tuesday, June 13, 2000 3:04 PM

To: Luker, Steve

Subject: FW: 00A1148

Mike Salmans

Analytical Services *Phone # 303-966-5057 Pager # 303-212-3149*

Fax # 303-212-3149

----Original Message-----

From: Lee Heath [SMTP:Imh@mail.gel.com]

Sent: Tuesday, June 13, 2000 2:26 PM

To: Michael Salmans

Subject: 00A1148

The 100% size of these circular disks of metal and rubber were:

(1-4 in order)

0.7182 g

1.8692 g

2.1784 g

0.7303 g (rubber)

00A1148 Data Package Narrative

Four waste samples, under the Subcontract Number KH700331EP6, were received on May 15, 2000. Four samples were analyzed by Alpha Spectroscopy for Polonium-210, Plutonium 239/240, Uranium-233/234,235,238, and Americium 241.

Analytical Method:

EPI A-011 (Alpha Spec)

Matrix Interferences:

There are no matrix interferences to report.

• QC Deficiencies:

There were no deficiencies.

Hold Times:

All samples were analyzed within the required

holding time.

RDLs:

There were no failed detection limits.

Reanalysis Information:

There were no reanalysis of the samples.

Deviations from SOP:

See following page.

Comments:

- RC01CAL_EPI_3-JUN-2000, RC01CAL_EPI_4-JUN-2000 correspond to RC01CAL_EPI_01JUN2000.
- 2. The following samples did not meet the FWHM requirement of < 80 keV.

1000060362_PU 94 keV 1000060364_PU 92 keV

1000060364_PU 92 keV 1000061142_UU 85 keV

3. Sample 00A1148-031.002, 00A1148-034.002 and QC 1000061142 were recounted due to failed yield.

017

Sample QC Results Summary 6/20/00

RIN 00A1148

Une Item Code: TR01A187

Matrix: Misc. solid

KHÇO ID #	GEL ID #	Analysis	Result pCi/g	2sigma Error pCi/g	MDA pCi/g	RDL pCI/g	Tracer Yield %	
00A1148-015,002	25798001	Polonium-210	2.76E+00	8.17E-01	1.70E-01	1.00	68.72	
00A1148-019.002	25798002	Polonium-210	2.74E+00	5.74E-01	1.56E-01	1.00	46.74	
00A1148-031.002	25798003	Polonium-210	3,80E+00	8.39E-01	2.84E-01	1.00	54.27	
00A1148-034.002	25798004	Polonium-210	5.07E+00	1.26E+00	2.22E-01	1.00	57.88	
1000060 386	Blank	Polonium-210	5.39E-02	8.61E-02	1.53E-01	1.00	49.73	
1000061844	Duplicate 00A1057-002.001	Polonium-210	2.47E+00	5.60E-01	1.65E- 0 1	1.00	70.11	
1000060358	LCS	Polonium-210	1.37E+01	1.12E+00	1.73E-01	1.00	59.83	
LCS recovery:		_						
-210	Nom, Conc.	Recovery: 89%						

Equivalency: Po-210

F/E = 1.319

742 PU.1

General Engineering Labs, Inc.

Rock/ Hats

Sample QC Results Summary 6/13/00

atch #: 27173 RIN 00A1148

Line Item Code: TR01A187

Matrix: Miso, solid

KHCO ID #	GEL ID#	Analysis	Result pCi/g	2sigma Error pCi/g	MDA pCi/g	RDL, pCi/g	Tracer Yield %
00A1148-015.002	25798001	Americium-241	1.09E-01	9.57E-02	5.92E-02	0.30	81.49
00A1148-019,002	25798002	Americium-241	4.20E-02	3.72E-02	4.51E-02	0.30	89.13
00A1148-031.002	25798003	Americium-241	0.00E+00	0.00E+00	3.44E-02	0.30	85.19
00A1148-034.002	25798004	Americium-241	1.45E-02	6.08E-02	1.66E-01	0.30	64.68
1000060359	Blank	Americium-241	3.54E-02	4.01E-02	6.37E-02	0.30	86.16
1000051138	Duplicate 00A1148-031.002	Americium-241	0.00E+00	0.00E+00	4.27E-02	0.30	90.73
1000060361	LCS	Americium-241	4.39E+00	3.71E-01	2.21E-02	0.30	95.55
LCS recovery:		_					
m-241	Nom. Conc. 4.5	Recovery: 98%					

Equivalency: Am-241

F/E = 0

General Engineering Labs, Inc.

Racky Flata

Sample QC Results Summary 6/13/00

atch #: 27174 RIN 00A1148

Line Item Code: TR01A187

Matrix: Misc. solid

KHCO ID #	GEL ID#	Analysis	Result pCI/g	2sigma Error pCi/g	MDA pCi/g	RDL pCi/g	Tracer Yield %
00A1148-015.002	25798001	Plutonium-239/240	3.74E-01	1.68E-01	5.33E-02	0.30	95,36
00A1148-019.002	25798002	Plutonium-239/240	-9.15E-03	1.79E-02	1.13E-01	0.30	39.51
00A1148-031.002	25798003	Plutonium-239/240	-2.74E-02	3.10E-02	1.58E-01	0.30	62.53
00A1148-034.002	25798004	Plutonium-239/240	1.62E-02	6.79E-02	1.85E-01	0,30	59.66
1000060362	Blank	Plutonium-239/240	0.00E+00	0.00E+00	2.62E-02	0.30	81.37
1000061141	Duplicate 00A1148-031.002	Plutonium-239/240	0.00E+00	0.00E+00	6.05E-02	0.30	66.68
1000060364	LCS	Plutonium-239/240	5.04E+00	3,93E-01	2.16E-02	0.30	97.91
LCS recovery:	Name Oaste	Danning	•				
1-239/2 40	Nom, Conc. 5.7	Recovery: 88%					

Equivalency: Pu-239/240

F/E = 0.883

14) 80.9

General Engineering Labs. Inc.

Rocky Flate

Sample QC Results Summary 6/19/00

Itch #: 27175 RIN 00A1148

Line Item Code: TR01A187

Matrix: Misc. solid

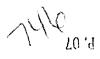
KHCO ID #	GEL ID #	Analysis	Result pCi/g_	2sigma Error pCi/g	MDA pCi/g	RDL r pCi/g	Tracer Yield %
00A1148-015.002	25798001	Uranium-233/234	3,48E-02	6.21E-02	1.24E-01	1.00	104.52
		Uranium-235	-7.52E-03	4.34E-02	1.41E-01	1.00	104.52
		Úranium-238	6.80E-04	4.04E-02	1.24E-01	1.00	104.52
00A1148-019.002	25798002	Uranlum-233/234	1.72E-02	2.85E-02	5.57E-02	1.00	99.31
		Uranium-235	-2.69E-03	2.33E-02	6.66E-02	1.00	99.31
		Uranium-238	-9.39E-03	1.93E-02	6.66E-02	1.00	99.31
00A1148-031,002	25798003	Uranlum-233/234	1.54E-02	3.96E-02	8.79E-02	1.00	107.82
		Uranium-235	-1.06E-02	1.46E-02	7.70E-02	1.00	107.82
		Uranium-238	1.04E-02	2.04E-02	2.82E-02	1.00	107.82
00A1148-034.002	25798004	Uranium-233/234	1.18E-01	8.36E-02	9.73E-02	1.00	105.49
		Uranium-235	-6.60E-03	1.30E-02	7.90E-02	1.00	105.49
		Uranium-238	6.56E-02	6.58E-02	9.73E-02	1.00	105.49
100006 9365	Blank	Uranium-233/234	7.74E-04	2.65E-02	6.85E-02	1.00	104.63
		Uranium-235	-1.24E-02	1.21E-02	5.91E-02	1.00	104.63
		Uranium-238	2.58E-04	1.53E-02	4.69E-02	1.00	104.63
1000061142	Duplicate	Uranium-233/234	2.02E-02	2.87E-02	4.87E-02	1.00	97.21
	00A1148-031-002	Uranium-235	-8.22E-03	1.14E-02	6.00E-02	1.00	97.21
		Uranium-238	8.04E-03	2.52E -02	6.00E-02	1.00	97.21
1000060367	LCS	Uranium-233/234	3.89E+00	3.20E-01	6.78E-02	1.00	99.19
		Uranium-235	2.12E-01	7.62E-02	4.97E-02	1.00	99.19
		Uranium-238	4.19E+00	3.32E-01	5.67E-02	1.00	99.19

LCS recovery:

Nom. Conc. Recovery: U-238 4.336 97%

Equivalency:

U-233/234 F/E = 0.098U-235 F/E = 0.128U-238 F/E = 0.073



General Engineering Labs, Inc.

Luker, Steve

From: Salmans, Michael

Sent:

Tuesday, June 13, 2000 3:04 PM

Luker, Steve To: Subject: FW: 00A1148

Mike Salmans

Analytical Services Phone # 303-966-5057 Pager # 303-212-3149 Fax # 303-966-3578.

----Original Message----

Lee Heath [SMTP:Imh@mail.gel.com] From:

Sent: Tuesday, June 13, 2000 2:26 PM

To: Michael Salmans

Subject: 00A1148

The 100% size of these circular disks of metal and rubber were:

(1-4 in order)

0.7182 g

1.8692 g

2.1784 g

0.7303 g (rubber)